



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

MAR 04 2009

**SPECIAL NOTICE LETTER
URGENT LEGAL MATTER
PROMPT REPLY NECESSARY
CERTIFIED MAIL: RETURN RECEIPT REQUESTED**

Sachs Electric Company
c/o Christine B. McInerney, Registered
Agent
1572 Larkin William Road
Fenton, MO 63026

Re: Special Notice Letter for the Missouri Electric Works Superfund Site
Cape Girardeau, Missouri

Dear Sir or Madam:

This letter notifies the addressee of its potential responsibility under Section 107(a) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA" or "Superfund"), 42 U.S.C. § 9607(a), for the cleanup of operable unit number 2 (groundwater), and the investigation and cleanup of operable unit number 3 (wetlands), of the Missouri Electric Works Superfund Site ("Site"), including all costs incurred by the United States Environmental Protection Agency ("EPA") in responding to releases at the Site. EPA is now contacting the addressee in an attempt to resolve your potential liability at the Site.

Background

The Site is the location of a former transformer repair facility which operated from approximately 1953 to 1989. Beginning in 1984, the State of Missouri and EPA became aware that facility operations had resulted in the release of polychlorinated biphenyl ("PCB")-contaminated oil into the soils and groundwater at and near the Site. On February 21, 1990, the Site was placed on the National Priorities List ("NPL"). The NPL is a list of the most serious, uncontrolled or abandoned hazardous waste sites identified by EPA for possible long-term remedial action under CERCLA.

In 1990, EPA sent Special Notice Letters to numerous parties who EPA considered to be potentially responsible parties ("PRPs") who had contributed hazardous substances to the Site. Under the Superfund law the PRPs are responsible for the costs of cleaning up the Site. EPA's records indicate that the addressee received such a letter and in 1992 settled with the United States and the State of Missouri with regard to the soil contamination at the Site.

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Superfund



In September 2005, EPA issued a Record of Decision ("ROD") addressing the groundwater contamination at the Site. In addition to the groundwater contamination (the groundwater component of the response is referred to as operable unit number 2, or OU2, with OU1 being the completed soil component), there remains a downgradient wetlands area where contamination from the Site has come to be located. The wetlands component is referred to as OU3.

As you may be aware, years ago a group of PRPs formed what was known as the Missouri Electric Works Steering Committee ("MEWSC"). The MEWSC represented many of the PRPs and performed the work required to clean up contaminated soils and investigate contaminated groundwater at the Site. EPA has discussed with the MEWSC how to proceed with the OU2 and OU3 components of work remaining, and it has been suggested that combining all remaining work in one settlement—a Consent Decree—would be the preferred method of completing the work required at the Site.

Special Notice and Negotiation Moratorium

EPA has determined that use of the special notice procedures set forth in Section 122(e) of CERCLA, 42 U.S.C. § 9622(e), may facilitate a settlement among the parties for implementation of the remaining work. Under Section 122(e), this letter triggers a sixty (60)-day moratorium on certain EPA response activities at the Site. During this 60-day moratorium, EPA will not begin response actions at the Site. However, EPA reserves the right to take action at the Site at any time should a significant threat to the human health or the environment arise.

During this 60-day period, you and the other PRPs are invited to participate in formal negotiations with EPA in an effort to reach a settlement to conduct or finance the response actions at the Site. The 60-day negotiation moratorium will be extended for an additional sixty (60) days if the PRPs provide EPA with a "good faith offer" to conduct or finance the response actions and reimburse EPA for its costs incurred to date. If EPA determines that a proposal is not a "good faith offer," you will be notified in writing of EPA's decision to end the moratorium. If settlement is reached among the parties within the 120-day negotiation moratorium, the settlement will be embodied in a Consent Decree. When approved by EPA and the U.S. Department of Justice ("DOJ"), the Consent Decree will then be lodged in federal court.

If a "good faith offer" is not received within sixty (60) days, or a timely settlement cannot be reached, EPA may take appropriate action at the Site, which may include either of the following options: (1) EPA may fund the response(s) and pursue a cost recovery claim under Section 107 of CERCLA, 42 U.S.C. § 9607, against you and/or the other PRPs; or (2) EPA may issue a Unilateral Administrative Order ("UAO") to you and/or the other PRPs under Section 106(a) of CERCLA, 42 U.S.C. § 9606, requiring you or them to perform the work. If the recipients of a UAO refuse to comply with the UAO, EPA may pursue civil litigation against the recipients to require compliance.

Pursuant to the Superfund Reforms announced on October 2, 1995, when EPA enters into future RD/RA settlements, EPA intends to compensate settlers for a portion of the shares specifically attributable to insolvent and defunct PRPs ("orphan share"), if any. EPA believes that there may be PRPs at this Site who are insolvent or defunct and that orphan-share compensation may be appropriate.

Good Faith Offer

A proposed Consent Decree is enclosed¹ to assist you in developing a "good faith offer." As indicated, the 60-day negotiation moratorium triggered by this letter is extended for 60 days if the PRPs submit a "good faith offer" to EPA. A "good faith offer" to conduct or finance the response actions is a written proposal that demonstrates the PRPs' qualifications and willingness to perform such work and should include the following elements:

- A statement of the PRPs' willingness and financial ability to implement the requirements of the proposed Consent Decree and that provides a sufficient basis for further negotiation;
- A demonstration of the PRPs' technical capability to carry out the work required by the Consent Decree, including identification of the firm(s) that may actually conduct the work or a description of the process that will be undertaken to select the firm(s);
- A statement of the PRPs' willingness to reimburse EPA for costs EPA will incur in overseeing implementation of the response action;
- A response to the proposed Consent Decree. If the "good faith offer" contemplates modifications to the Consent Decree, please make revisions or edits to the Consent Decree and submit a version showing your proposed modifications;
- A list identifying each party on whose behalf the offer is being made, including name, address, and telephone number of each party; and
- The name, address, and phone number of the party who will represent you in negotiations.

¹ The Consent Decree and its attachments are available in Word format for download from March 5 through March 16, 2009, at www.epa.gov/region07/temp.

Demand for Reimbursement of Costs

With this letter, EPA demands that you reimburse EPA for its costs incurred to date, and encourages you to voluntarily negotiate a Consent Decree in which you and other PRPs agree to perform the required work.

In accordance with Section 104 of CERCLA, 42 U.S.C. § 9604, EPA has already taken certain response actions and incurred certain costs in response to conditions at the Site. EPA is seeking to recover from the PRPs at the Site its response costs and all the interest authorized to be recovered under Section 107(a) of CERCLA, 42 U.S.C. § 9607. The approximate total response costs identified through December 31, 2008, for the Site are \$56,297.03. Under Section 107(a) of CERCLA, 42 U.S.C. § 9607, EPA hereby makes a demand for payment from you and other PRPs for the above amount plus all interest authorized to be recovered under Section 107(a). An itemized summary of these costs is enclosed.

In the event that you file for protection in a bankruptcy court, you must include EPA as creditor, because EPA has a potential claim against you. EPA reserves the right to file a proof of claim or application for Reimbursement of Administrative Expenses in the bankruptcy proceeding.

PRP Steering Committee

To assist PRPs in negotiating with EPA concerning this matter, EPA is attaching to this letter a list of the names and addresses of other PRPs to whom it is providing special notice. EPA recommends that all PRPs form a steering committee responsible for representing the PRPs' interests. EPA recognizes that the allocation of responsibility among PRPs may be difficult. If the PRPs are unable to reach consensus among themselves, we encourage the use of the services of a neutral third party to help allocate responsibility. Third parties are available to facilitate negotiations. At the PRPs' request, EPA will provide a list of experienced third-party mediators, or help arrange for a mediator.

Administrative Record

In accordance with Section 113 of CERCLA, 42 U.S.C. § 9613, EPA has established an Administrative Record containing the documents that serve as the basis for EPA's selection of the response action for OU2 at the Site. This Administrative Record is located at the Cape Girardeau Public Library, 711 North Clark Street, Cape Girardeau, Missouri, and is available to the public for inspection and comment. The Administrative Record is also available for inspection and comment at the Superfund Records Center, EPA Region VII, 901 North 5th Street, Kansas City, Kansas. You may wish to review the Administrative Record to assist you in responding to this letter, but your review should not delay any response beyond the 60-day period provided by the Superfund statute.

PRP Response and EPA Contact Person

You are encouraged to contact EPA within 60 days of your receipt of this letter to indicate your willingness to participate in future negotiations concerning this Site. You may respond individually or through a steering committee if such a committee has been formed. If EPA does not receive a timely response, EPA will assume that you do not wish to negotiate a resolution of your liabilities in connection with the Site, and that you have declined any involvement in performing the response activities.

Your response to this Special Notice Letter and the demand for costs included herein, including written proposals to perform the response actions required at the Site, should be sent to:

Pauletta R. France-Isetts, Remedial Project Manager
U.S. Environmental Protection Agency
SUPR/SPEB
901 North 5th Street
Kansas City, Kansas 66101

The factual and legal discussions in this letter are intended solely to provide notice and information, and such discussions are not to be construed as a final EPA position on any matter set forth herein. Due to the seriousness of the environmental and legal issues posed by the conditions at the Site, EPA urges you to give immediate attention and prompt response to this letter.

Resources and Information for Small Businesses

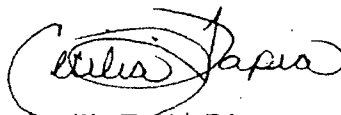
As you may be aware, on January 11, 2002, President Bush signed into law the Superfund Small Business Liability Relief and Brownfields Revitalization Act. This Act contains several exemptions and defenses to CERCLA liability, which we suggest that all parties evaluate. You may obtain a copy of the law and review EPA guidance regarding these exemptions via the Internet at <http://www.epa.gov/swerosps/bf/sblrbra.htm>.

EPA has created a number of helpful resources for small businesses. EPA has established the National Compliance Assistance Clearinghouse as well as Compliance Assistance Centers which offer various forms of resources to small businesses. You may inquire about these resources at www.epa.gov. In addition, the EPA Small Business Ombudsman may be contacted at <http://www.epa.gov/sbo>. Finally, EPA developed a fact sheet about the Small Business Regulatory Enforcement Fairness Act, which is enclosed.

If you have any questions regarding the technical aspects of this matter, please contact Pauletta R. France-Isetts, Remedial Project Manager, at 913-551-7701. Any legal questions should be directed to David Hoefer, the EPA attorney assigned to this matter, at 913-551-7503.

My staff and I look forward to working with you during the coming months.

Sincerely,

A handwritten signature in black ink, appearing to read "Cecilia Tapia", is written over a circular stamp. The signature is fluid and cursive.

Cecilia Tapia, Director
Superfund Division

Enclosures: (1) Consent Decree w/ attachments
(2) EPA Itemized Cost Summary
(3) Special Notice Recipients
(4) SBREFA Fact Sheet

cc: Robert Hinkson, Missouri Department of Natural Resources
Robert Stewart, U.S. Department of the Interior

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MISSOURI
SOUTHEASTERN DIVISION

UNITED STATES OF AMERICA

and

STATE OF MISSOURI,

Plaintiffs,

v.

UNION ELECTRIC COMPANY, *et*
al.,

Defendants.

CIVIL ACTION NO. _____

CONSENT DECREE

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I. BACKGROUND

A. The United States of America ("United States"), on behalf of the Administrator of the United States Environmental Protection Agency ("EPA"), and the State of Missouri ("State") filed a complaint in this matter pursuant to Sections 106 and 107 of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA"), 42 U.S.C. §§ 9606, 9607, and applicable Missouri law.

B. The United States in its complaint seeks, *inter alia*: (1) the reimbursement of costs incurred by EPA and the United States Department of Justice ("DOJ") for response actions for operable units 2 and 3 at the Missouri Electric Works Superfund Site (the "Site") located in Cape Girardeau, Missouri, together with accrued interest; (2) the performance of studies and response work by Settling Defendants for Operable Units 2 and 3 at the Site consistent with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 C.F.R. Part 300 (as amended) ("NCP"), and (3) such other relief as the Court finds appropriate.

C. In accordance with the NCP and Section 121(f)(1)(F) of CERCLA, 42 U.S.C. § 9621(f)(1)(F), EPA notified the State of Missouri (the "State") on January 13, 2009, of negotiations with potentially responsible parties ("PRPs") regarding the performance of certain response actions, including the implementation of the remedial designs and remedial actions for the Site, and EPA has provided the State with an opportunity to participate in such negotiations and be a party to this Consent Decree.

D. The State has also filed a complaint against the defendants and the United States in this Court alleging that Settling Defendants and the Settling Federal Agencies are liable to the State under Section 107 of CERCLA, 42 U.S.C. § 9607, and state law for: (1) the reimbursement of costs incurred by the State for response actions for Operable Units 2 and 3 at the Site, together with accrued interest; (2) natural resource damages; and (3) such other relief as the Court finds appropriate.

E. In accordance with Section 122(j)(1) of CERCLA, 42 U.S.C. § 9622(j)(1), on February 25, 2009, EPA notified the U.S. Department of Interior, the Federal natural resource trustee, of negotiations with potentially responsible parties regarding the release of hazardous substances that may have resulted in injury to the natural resources under Federal trusteeship and encouraged the trustee(s) to participate in the negotiation of this Consent Decree.

F. The defendants that have entered into this Consent Decree ("Settling Defendants") do not admit any liability to the Plaintiffs arising out of the transactions or occurrences alleged in the complaints, nor do they acknowledge that the release or threatened release of hazardous substances at or from the Site constitutes and imminent or substantial endangerment to the public health or welfare or the environment. The Settling Federal Agencies do not admit any liability arising out of the transactions or occurrences alleged in any counterclaim asserted by Settling Defendants or any claim by the State.

G. Pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, EPA placed the Site on the National Priorities List, set forth at 40 C.F.R. Part 300, Appendix B, by publication in the Federal Register on February 21, 1990, 55 Fed. Reg. 6158.

H. In response to a release or a substantial threat of a release of hazardous substances at or from the Site, certain PRPs at the Site commenced a Remedial Investigation/Feasibility Study ("RI/FS"), pursuant to 40 C.F.R. § 300.430, in December 1988. This RI/FS focused on soil contamination with limited investigation of groundwater contamination. The PRPs completed this RI/FS in July 1990.

I. As a result of post-RI/FS Site groundwater investigative work conducted by certain PRPs, it was determined that additional groundwater investigation was required to adequately characterize groundwater contamination. As a result, Site work was divided into three (3) operable units ("OUs"). OU1 addressing contaminated soils, OU2 addressing contaminated groundwater, and OU3 addressing a nearby wetland area where contamination from the Site has come to be located.

J. Pursuant to Section 117 of CERCLA, 42 U.S.C. § 9617, EPA published notice of the completion of the FS and of the proposed plan for remedial action for OU1 on August 19, 1990, in a major local newspaper of general circulation in Cape Girardeau, Missouri. EPA provided an opportunity for written and oral comments from the public on the proposed plan. A copy of the transcript of the public meeting is available to the public as part of the administrative record upon which EPA based the selection of the response action for OU1.

K. The decision by EPA on the remedial action is embodied in a final Record of Decision ("the 1990 ROD"), executed on September 28, 1990, on which the State had a reasonable opportunity to review and comment and on which the State has concurred. The 1990 ROD includes a responsiveness summary to the public comments. Notice of the final plan was published in accordance with Section 117(b) of CERCLA, 42 U.S.C. § 9617.

L. In June 1992, a Consent Decree (the "1992 Consent Decree") entered into by and between Plaintiffs and certain settling defendants was lodged in the United States District Court for the Eastern District of Missouri, Southeastern Division, under Civil Action Nos. 1:92CV0078GFG and 1:92CV00088GFG. The 1992 Consent Decree provided for the performance of a remedial design/remedial action ("RD/RA") to address contaminated soils, and a groundwater design investigation to more completely characterize groundwater contamination.

M. In February 1995, EPA issued an Explanation of Significant Differences ("ESD") to the 1990 ROD which modified the remedial action by broadening the technologies that were approved by EPA for use in addressing contaminated soils at the Site. The 1992 Consent Decree was entered by the Court in March 1998, and the OU1 RD/RA required by the 1990 ROD, ESD, and 1992 Consent Decree, and a groundwater design investigation, were completed by certain settling defendants to the 1992 Consent Decree.

N. In September 2005, EPA issued a ROD ("OU2 ROD") for OU2, selecting response actions to address the contaminated groundwater at, and emanating from, the Site. The State had a reasonable opportunity to review and comment on, and concurred on, the OU2 ROD. The OU2 ROD includes a responsiveness summary to the public comments. Notice of the OU2 ROD was published in accordance with Section 117(b) of CERCLA 42 U.S.C. § 9617(b).

O. Based on the information presently available to EPA and the State, EPA and the State believe that the Work will be properly and promptly conducted by Settling Defendants if conducted in accordance with the requirements of this Consent Decree and its appendices.

P. Solely for the purposes of Section 113(j) of CERCLA, 42 U.S.C. § 9613(j), the Remedial Action selected by the OU2 ROD and the Work to be performed by Settling Defendants pursuant to this Consent Decree, including the Remedial Action for OU3, shall constitute a response action taken or ordered by the President.

Q. Settling Defendants have asserted that they would bring a contribution claim against the Settling Federal Agencies and the Parties wish to settle that threatened claim.

R. The Parties recognize, and the Court by entering this Consent Decree finds, that this Consent Decree has been negotiated by the Parties in good faith and implementation of this Consent Decree will expedite the cleanup of the Site and will avoid prolonged and complicated litigation between the Parties, and that this Consent Decree is fair, reasonable, and in the public interest.

NOW, THEREFORE, it is hereby Ordered, Adjudged, and Decreed:

II. JURISDICTION

1. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1345, and 42 U.S.C. §§ 9606, 9607, and 9613(b). This Court also has personal jurisdiction over Settling Defendants. Solely for the purposes of this Consent Decree and the underlying complaints, Settling Defendants waive all objections and defenses that they may have to jurisdiction of the Court or to venue in this District. Settling Defendants shall not challenge the terms of this Consent Decree or this Court's jurisdiction to enter and enforce this Consent Decree.

III. PARTIES BOUND

1. This Consent Decree applies to and is binding upon the United States and the State and upon Settling Defendants and their successors, heirs, and assigns. Any change in ownership or corporate status of a Settling Defendant including, but not limited to, any transfer of assets or real or personal property, shall in no way alter such Settling Defendant's responsibilities under this Consent Decree.

2. Settling Defendants shall provide a copy of this Consent Decree to each contractor hired to perform the Work required by this Consent Decree and to each person representing any Settling Defendant with respect to the Site or the Work and shall condition all contracts entered into hereunder upon performance of the Work in conformity with the terms of this Consent Decree. Settling Defendants or their contractors shall provide written notice of the Consent Decree to all subcontractors hired to perform any portion of the Work required by this Consent Decree. Settling Defendants shall nonetheless be responsible for ensuring that their contractors and subcontractors perform the Work contemplated herein in accordance with this Consent Decree. With regard to the activities undertaken pursuant to this Consent Decree, each contractor and subcontractor shall be deemed to be in a contractual relationship with Settling Defendants within the meaning of Section 107(b)(3) of CERCLA, 42 U.S.C. § 9607(b)(3).

IV. DEFINITIONS

1. Unless otherwise expressly provided herein, terms used in this Consent Decree, or the appendices attached hereto, which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Consent Decree, or in the appendices attached hereto, and incorporated hereunder, the following definitions shall apply:

“CERCLA” shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. § 9601, *et seq.*

“Consent Decree” shall mean this Consent Decree and all appendices attached hereto (listed in Section XXIX). In the event of conflict between this Consent Decree and any appendix, this Consent Decree shall control.

“Day” shall mean a calendar day unless expressly stated to be a working day. “Working day” shall mean a day other than a Saturday, Sunday, or Federal holiday. In computing any period of time under this Consent Decree, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

“Effective Date” shall be the effective date of this Consent Decree as provided in Section XXVII.

“EPA” shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

“Future Response Costs” shall mean all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports, and other items pursuant to this Consent Decree, verifying the Work, or otherwise implementing, overseeing, or enforcing this Consent Decree, including, but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, the costs incurred pursuant to Sections VII (Remedy Review), IX (Access and Institutional Control) (including, but not limited to, the cost of attorney time and any monies paid to secure access and/or to secure, implement, monitor, maintain or enforce institutional controls including, but not limited to, the amount of just compensation), XV (Emergency Response), and Paragraph 7 of Section XXI (Work Takeover). Future Response Costs shall also include all Interim Response Costs, and all Interest on those Past Response Costs Settling Defendants have agreed to reimburse under this Consent Decree that has accrued pursuant to 42 U.S.C. § 9607(a) during the period from January 1, 2009, to the date of entry of this Consent Decree.

“Interest,” shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

“Interim Response Costs” shall mean all costs, including direct and indirect costs, (a) paid by the United States in connection with the Site between January 1, 2009, and the Effective Date, or (b) incurred prior to the Effective Date but paid after that date.

"MDNR" shall mean the Missouri Department of Natural Resources and any successor departments or agencies of the State.

"National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

"Operation and Maintenance" or "O&M" shall mean all activities required to maintain the effectiveness of a Remedial Action as required under a Operation and Maintenance Plan approved or developed by EPA pursuant to this Consent Decree and a Statement of Work.

"OU2 Record of Decision" or "OU2 ROD" shall mean the EPA Record of Decision relating to the groundwater operable unit (OU2) at the Site signed on September 28, 2005, by the Director of EPA Region VII's Superfund Division, and all attachments thereto. The OU2 ROD is attached as Appendix A.

"OU3 Record of Decision" or "OU3 ROD" shall mean the EPA Record of Decision relating to the wetland operable unit (OU3) at the Site which is expected to be issued by EPA following the completion of the RI/FS for OU3.

"Paragraph" shall mean a portion of this Consent Decree identified by an arabic numeral or an upper case letter.

"Parties" shall mean the United States, the State of Missouri, the Settling Defendants, and the Settling Federal Agencies.

"Past Response Costs" shall mean all costs, including, but not limited to, direct and indirect costs, that the United States paid at or in connection with the Site from September 30, 2005, to December 31, 2008, plus Interest on all such costs which has accrued pursuant to 42 U.S.C. § 9607(a) through such date.

"Performance Standards for the OU2 ROD" shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action, set forth in Section 8.0 of the OU2 ROD and the Scope of Work for Remedial Design and Remedial Action for OU2, attached hereto as Appendix C.

"Performance Standards for the OU3 ROD" shall mean the cleanup standards and other measures of achievement of the goals of the Remedial Action for OU3, which will be set forth in the OU3 ROD and in the Scope of Work for Remedial Design and Remedial Action for OU3 to be issued by EPA.

"Plaintiffs" shall mean the United States and the State of Missouri.

"RCRA" shall mean the Solid Waste Disposal Act; as amended, 42 U.S.C. § 6901 *et seq.* (also known as the Resource Conservation and Recovery Act).

"Remedial Action for OU2" shall mean those activities, except for Operation and Maintenance, to be undertaken by Settling Defendants to implement the OU2 ROD, in accordance with the Scope of Work for Remedial Design and Remedial Action for OU2 and the final Remedial Design and Remedial Action Work Plan for OU2.

“Remedial Action for OU3” shall mean those activities, except for Operation and Maintenance, to be undertaken by Settling Defendants to implement the OU3 ROD, in accordance with the Statement of Work to be issued by EPA for OU3 and the final Remedial Design and Remedial Action Work Plans for OU3 and other plans approved by EPA pursuant to the OU3 ROD issued by EPA following the performance of the RI/FS for OU3.

“Remedial Design for OU2” shall mean those activities to be undertaken by Settling Defendants to develop the final plans and specifications for the Remedial Action for OU2 pursuant to the Scope of Work for Remedial Design and Remedial Action for OU2 and the final Remedial Design and Remedial Action Work Plan for OU2.

“Remedial Design for OU3” shall mean those activities to be undertaken by Settling Defendants to develop the final plans and specifications for the Remedial Action for OU3 pursuant to the Statement of Work issued by EPA for OU3 and the final Remedial Design and Remedial Action Work Plans for OU3 and other plans approved by EPA pursuant to the OU3 ROD.

“Remedial Investigation/Feasibility Study for OU3” or “RI/FS for OU3” or “RI/FS” shall mean those activities required to characterize Site conditions; determine the nature, rate, and extent of the contamination; assess risks to human health and the environment; and evaluate the potential performance and cost of remedial alternatives.

“Scope of Work for Remedial Design and Remedial Action for OU2” shall mean the scope of work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance for OU2 at the Site, as set forth in Appendix C to this Consent Decree and any modifications made in accordance with this Consent Decree.

“Scope of Work for Remedial Investigation and Feasibility Study for OU3” shall mean the scope of work for the development of the RI/FS for OU3, as set forth in Appendix D to this Consent Decree and any modifications made in accordance with this Consent Decree.

“Scope of Work for Remedial Design and Remedial Action for OU3” shall mean the scope of work for implementation of the Remedial Design, Remedial Action, and Operation and Maintenance for OU3 at the Site. This scope of work will be developed by EPA following the issuance of a Record of Decision for OU3.

“Section” shall mean a portion of this Consent Decree identified by a Roman numeral.

“Settling Defendants” shall mean those Parties identified in Appendix B.

“Settling Federal Agencies” shall mean those departments, agencies, and instrumentalities of the United States identified in Appendix B, which are resolving any claims which have been or could be asserted against them with regard to this Site as provided in this Consent Decree.

“Site” shall mean the property located at 824 South Kingshighway (Highway 61), in Cape Girardeau, Cape Girardeau County, Missouri, which Missouri Electric Works Inc. formerly owned and where Missouri Electric Works Inc. formerly operated, and shall also include all areas to which Waste Material from the Missouri Electric Works Inc. property has migrated or come to be located and all areas in proximity to such contamination that are necessary for the

implementation of the Work. The Site is generally depicted on Figures 1 through 3 of the OU2 ROD.

“State” shall mean the State of Missouri.

“Supervising Contractor” shall mean the principal contractor retained by Settling Defendants to supervise and direct the implementation of the Work under this Consent Decree.

“United States” shall mean the United States of America, including all of its departments, agencies, and instrumentalities, which include without limitation EPA, the Settling Federal Agencies and any federal natural resource trustee.

“Waste Material” shall mean: (1) any “hazardous substance” under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); (2) any pollutant or contaminant under Section 101(33), 42 U.S.C. § 9601(33); (3) any “solid waste” under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27).

“Work” shall mean all activities Settling Defendants are required to perform, and all obligations Settling Defendants have under this Consent Decree, except those required by Section XXV (Retention of Records).

V. GENERAL PROVISIONS

1. Objectives of the Parties. The objectives of the Parties in entering into this Consent Decree are to: (a) determine the nature and extent of contamination and any threat to the public health, welfare, or the environment caused by the release or threatened release of hazardous substances, pollutants or contaminants at or from the Site, by conducting a Remedial Investigation; (b) identify and evaluate remedial alternatives to prevent, mitigate or otherwise respond to or remedy any release or threatened release of hazardous substances, pollutants, or contaminants at or from the Site, by conducting a Feasibility Study; (c) protect public health or welfare or the environment at the Site by the design, implementation, and operation and maintenance of response actions at the Site by Settling Defendants; (d) reimburse the response costs of Plaintiffs; and (e) resolve the claims of Plaintiffs against Settling Defendants and the claims of the State and Settling Federal Defendants which have been or could have been asserted against the United States with regard to OU2 and OU3 at the Site as provided in this Consent Decree.

2. Commitments by Settling Defendants and Settling Federal Agencies

(a) Settling Defendants shall finance and perform the Work in accordance with this Consent Decree, the OU2 ROD, any future Record of Decision issued by EPA for the Site, and any SOW, work plan and other plans, standards, specifications, and schedules set forth herein or developed by Settling Defendants and approved by EPA pursuant to this Consent Decree. Settling Defendants shall also reimburse the United States and the State for Past Response Costs and Future Response Costs as provided in this Consent Decree. The Settling Federal Agencies shall reimburse the EPA Hazardous Substance Superfund for Past Response Costs and Future Response Costs as provide in this Consent Decree.

(b) The obligations of Settling Defendants to finance and perform the Work and to pay amounts owed the United States and the State under this Consent Decree are joint and several. In the event of the insolvency or other failure of any one or more Settling Defendants to implement the requirements of this Consent Decree, the remaining Settling Defendants shall complete all such requirements.

3. Compliance With Applicable Law. All activities undertaken by Settling Defendants pursuant to this Consent Decree shall be performed in accordance with the requirements of all applicable federal and state laws and regulations. Settling Defendants must also comply with all applicable or relevant and appropriate requirements of all Federal and state environmental laws as set forth in the OU2 ROD, any future Record of Decision issued by the EPA for the Site, and any SOW, work plan and other plans, standards, specifications, and schedules set forth herein or developed by Settling Defendants and approved by EPA pursuant to this Consent Decree. The activities conducted pursuant to this Consent Decree, if approved by EPA, shall be considered to be consistent with the NCP.

4. Permits.

(a) As provided in Section 121(e) of CERCLA, 42 U.S.C § 9621(e), and Section 300.400(e) of the NCP, no permit shall be required for any portion of the Work conducted entirely on-Site (i.e., within the areal extent of contamination or in very close proximity to the contamination and necessary for implementation of the Work). Where any portion of the Work that is not on-Site requires a federal or state permit or approval, Settling Defendants shall submit timely and complete applications and take all other actions necessary to obtain all such permits or approvals.

(b) Settling Defendants may seek relief under the provisions of Section XVIII (Force Majeure) of this Consent Decree for any delay in the performance of the Work resulting from a failure to obtain, or a delay in obtaining, any permit required for the Work.

(c) This Consent Decree is not, and shall not be construed to be, a permit issued pursuant to any federal or state statute or regulation.

5. Off-Site Shipments of Waste Material.

(a) Settling Defendants shall, prior to any off-Site shipment of Waste Material from the Site to an out-of-state waste management facility, provide written notification to the appropriate state environmental official in the receiving facility's state and to EPA's Project Coordinator of such shipment of Waste Material. However, this notification requirement shall not apply to any off-Site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

(i) Settling Defendants shall include in the written notification the following information, where available, the: (A) name and location of the facility to which the Waste Material is to be shipped; (B) type and quantity of the Waste Material to be shipped; (C) the expected schedule for the shipment of the Waste Material; and (D) method of transportation. Settling Defendants shall notify the state in which the planned receiving facility is located of

major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

(ii) The identity of the receiving facility and state will be determined by Settling Defendants following the award of the contract for each Remedial Action construction. Settling Defendants shall provide the information required by the preceding subparagraph as soon as practicable after the award of each contract and before any Waste Material is actually shipped.

(b) Before shipping any hazardous substances, pollutants, or contaminants from the Site to an off-site location, Settling Defendants shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Settling Defendants shall only send hazardous substances, pollutants, or contaminants from the Site to an off-site facility that complies with the requirements of the statutory provision and regulations cited in the preceding sentence.

VI. PERFORMANCE OF THE WORK BY SETTLING DEFENDANTS

A. RD/RA FOR OU2

1. Selection of Supervising Contractor

(a) All aspects of the Work to be performed by Settling Defendants in conducting the RD/RA for OU2 pursuant to this Consent Decree shall be under the direction and supervision of the Supervising Contractor for OU2, the selection of which shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within 10 days after the lodging of this Consent Decree, Settling Defendants shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be the Contractor for OU2. With respect to any contractor proposed to be the Supervising Contractor for OU2, Settling Defendants shall demonstrate that the proposed contractor has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for the Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared in accordance with "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01/002, March 2001) or equivalent documentation as determined by EPA. EPA will issue a notice of disapproval or an authorization to proceed. If at any time thereafter, Settling Defendants propose to change the Supervising Contractor for OU2, Settling Defendants shall give such notice to EPA and to the State and must obtain an authorization to proceed from EPA, after a reasonable opportunity for review and comment by the State, before the new Supervising Contractor for OU2 performs, directs, or supervises any Work under this Consent Decree.

(b) If EPA disapproves a proposed Supervising Contractor for OU2, EPA will notify Settling Defendants in writing. Settling Defendants shall submit to EPA and the State a list of contractors, including the qualifications of each contractor, that would be acceptable to them within 30 days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an

authorization to proceed with respect to any of the other contractors. Settling Defendants may select any contractor from that list that is not disapproved and shall notify EPA and the State of the name of the contractor selected within 21 days of EPA's authorization to proceed.

(c) If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents Settling Defendants from meeting one or more deadlines in a plan approved by EPA pursuant to this Consent Decree, Settling Defendants may seek relief under the provisions of Section XVIII (Force Majeure) hereof.

2. Remedial Design for OU2

(a) Within 30 days after EPA's issuance of an authorization to proceed pursuant to Paragraph 1(a) above, Settling Defendants shall submit to EPA and the State a work plan for the design of the Remedial Action at the Site ("OU2 Remedial Design Work Plan" or "OU2 RD Work Plan"). The OU2 RD Work Plan shall provide for the design of the remedy set forth in the OU2 ROD, in accordance with the Scope of Work for Remedial Design and Remedial Action for OU2 (Appendix C), and for the achievement of the Performance Standards and other requirements set forth in the OU2 ROD, this Consent Decree and the Scope of Work for Remedial Design and Remedial Action for OU2. Upon its approval by EPA, the OU2 RD Work Plan shall be incorporated into and become enforceable under this Consent Decree. Within 30 days after EPA's issuance of an authorization to proceed, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field design activities which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

(b) The OU2 RD Work Plan shall include plans and schedules for implementation of all remedial design and pre-design tasks identified in the Scope of Work for Remedial Design and Remedial Action for OU2, including, but not limited to, plans and schedules for the completion of: (1) the design sampling and analysis plan (including, but not limited to, a Remedial Design Quality Assurance Project Plan (RD QAPP) in accordance with Section VIII (Quality Assurance, Sampling, and Data Analysis)); (2) a Construction Quality Assurance Plan; and (3) an Institutional Control Implementation and Assurance Plan (ICIAP). The OU2 RD Work Plan may also include: (i) a treatability study; (ii) a Pre-design Work Plan; (iii) a preliminary design submission; (iv) an intermediate design submission; and (v) a pre-final/final design submission. In addition, the OU2 RD Work Plan shall include a schedule for completion of the OU2 Remedial Action Work Plan.

(c) Upon approval of the OU2 RD Work Plan by EPA, after a reasonable opportunity for review and comment by the State, and submittal of the Health and Safety Plan for all field activities to EPA and the State, Settling Defendants shall implement the OU2 RD Work Plan. Settling Defendants shall submit to EPA and the State all plans, submittals and other deliverables required under the approved OU2 RD Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, Settling Defendants shall not commence further Remedial Design activities for OU2 prior to EPA's approval of the OU2 RD Work Plan.

(d) The preliminary design submittal shall include, at a minimum, the following: (1) design criteria; (2) results of treatability studies; (3) results of additional field sampling and pre-design work; (4) project delivery strategy; (5) preliminary plans, drawings and sketches; (6) required specifications in outline form; and (7) preliminary construction schedule.

(e) The intermediate design submittal, if required by EPA or if independently submitted by Settling Defendants, shall be a continuation and expansion of the preliminary design. Any value engineering proposals must be identified and evaluated during this review.

(f) The pre-final/final design submittal shall include, at a minimum, the following: (1) final plans and specifications; (2) Operation and Maintenance Plan; (3) Construction Quality Assurance Project Plan ("CQAPP"); (4) Field Sampling Plan (directed at measuring progress towards meeting Performance Standards); and (5) Contingency Plan. The CQAPP, which shall detail the approach to quality assurance during construction activities at the Site, shall specify a quality assurance official ("QA Official"), independent of the Supervising Contractor, to conduct a quality assurance program during the construction phase of the project.

3. Remedial Action.

(a) Within 30 days following Settling Defendants' receipt of EPA's approval of the final design submittal for OU2, Settling Defendants shall submit to EPA and the State a work plan for the performance of the Remedial Action for OU2 at the Site ("OU2 RA Work Plan"). The OU2 RA Work Plan shall provide for construction and implementation of the remedy set forth in the OU2 ROD and achievement of the Performance Standards for OU2, in accordance with this Consent Decree, the OU2 ROD, the Scope of Work for Remedial Design and Remedial Action for OU2 (Appendix C), and the design plans and specifications developed in accordance with the OU2 RD Work Plan and approved by EPA. Upon its approval by EPA, the OU2 RA Work Plan shall be incorporated into and become enforceable under this Consent Decree. At the same time as they submit the OU2 RA Work Plan, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field activities required by the OU2 RA Work Plan which conforms to the applicable Occupational Safety and Health Administration and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

(b) The OU2 RA Work Plan shall include the following: (i) schedule for completion of the Remedial Action for OU2; (ii) method for selection of contractor; (iii) schedule for developing and submitting other required OU2 Remedial Action plans; (iv) groundwater monitoring plan; (v) methods for satisfying permitting requirements; (vi) methodology for implementation of the Operation and Maintenance Plan; (vii) methodology for implementation of the Contingency Plan; (viii) tentative formulation of the Remedial Action team; (ix) construction quality control plan (by constructor); and (x) procedures and plans for the decontamination of equipment and the disposal of contaminated materials. The OU2 RA Work Plan also shall include the methodology for implementation of the Construction Quality Assurance Plan and a schedule for implementation of all Remedial Action tasks identified in the final design submittal and shall identify the initial formulation of Settling Defendants' Remedial Action Project Team (including, but not limited to, the RD/RA Supervising Contractor for OU2).

(c) Upon approval of the OU2 RA Work Plan by EPA, after a reasonable opportunity for review and comment by the State, Settling Defendants shall implement the activities required under the OU2 RA Work Plan. Settling Defendants shall submit to EPA and the State all plans, submittals, or other deliverables required under the approved OU2 RA Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, Settling Defendants shall not commence physical Remedial Action activities at the Site prior to approval of the Remedial Action Work Plan.

4. Settling Defendants shall continue to implement the remedial action and O&M for OU2 until the Performance Standards for OU2 are achieved and for so long thereafter as is otherwise required under the Consent Decree.

5. Modification of the OU2 SOW or Related Work Plans.

(a) If EPA determines that modification to the work specified in the SOW for OU2 and/or in work plans developed pursuant to the Scope of Work for Remedial Design and Remedial Action for OU2 is necessary to achieve and maintain the Performance Standards for OU2 or to carry out and maintain the effectiveness of the remedy set forth in the OU2 ROD, EPA may require that such modification be incorporated in the Scope of Work for Remedial Design and Remedial Action for OU2 and/or such work plans, provided, however, that a modification may only be required pursuant to this Paragraph to the extent that it is consistent with the scope of the remedy selected in the ROD.

(b) For the purposes of Section XIV (Certification of Completion), Paragraph 1 only, the "scope of the remedy selected in the OU2 ROD" is defined as the remedial actions required to address the unacceptable risks present at OU2, as detailed in the OU2 ROD.

(c) If Settling Defendants object to any modification determined by EPA to be necessary pursuant to this Paragraph, they may seek dispute resolution pursuant to Section XIX (Dispute Resolution), Paragraph 4 (record review). The Scope of Work for Remedial Design and Remedial Action for OU2 and/or related work plans shall be modified in accordance with the final resolution of the dispute.

(d) Settling Defendants shall implement any work required by any modifications incorporated in the Scope of Work for Remedial Design and Remedial Action for OU2 and/or in work plans developed pursuant to the Scope of Work for Remedial Design and Remedial Action for OU2 in accordance with this Paragraph.

(e) Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions as otherwise provided in this Consent Decree.

5. Settling Defendants acknowledge and agree that nothing in this Consent Decree, the Scope of Work for Remedial Design and Remedial Action for OU2, or the OU2 RD or RA Work Plans constitute a warranty or representation of any kind by Plaintiffs that compliance with the work requirements set forth in the Scope of Work for Remedial Design and Remedial Action for OU2 and the Work Plans will achieve the Performance Standards for OU2.

B. RI/FS for OU3

1. Selection of Contractors, Personnel. All Work performed under this Consent Decree by Settling Defendants in conducting the RI/FS for OU3 shall be under the direction and supervisions of qualified personnel. Within 30 days of the Effective Date of this Consent Decree, and before the OU3 RI/FS work outlined below begins, Settling Defendants shall notify EPA and the State in writing of the names, titles, and qualifications of the personnel, including contractors, subcontractors, consultants, and laboratories to be used in carrying out such work. With respect to any proposed contractor, Settling Defendants shall demonstrate that the proposed contractor has a quality system which complies with ANSI/ASQC E4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995, or most recent version), by submitting a copy of the proposed contractor's Quality Management Plans (QA/R-2)," (EPA/240/B01/002, March 2001 or subsequently issued guidance) or equivalent documentation as determined by EPA. The qualifications of the persons undertaking the OU3 RI/FS for Settling Defendants shall be subject to EPA's review, for verifications that such persons meet minimum technical background and experience requirements. Settling Defendants must demonstrate to EPA's satisfaction that they are qualified to perform properly and promptly the actions required for the performance of the RI/FS for OU3. If EPA disapproves in writing of any person's technical qualifications, Settling Defendants shall notify EPA of the identity and qualifications of the replacement within 14 days of its receipt of EPA's written notice. If EPA subsequently disapproves of the replacement, EPA reserves the right to conduct a complete RI/FS for OU3, and to seek reimbursement for costs and penalties from Settling Defendants. During the course of the RI/FS, Settling Defendants shall notify EPA in writing of any changes or additions in the personnel used to carry out the RI/FS for OU3, providing their names, titles, and qualifications. EPA shall have the same right to disapprove changes and additions to personnel as it has hereunder regarding the initial notification.

2. Within 30 days after the Effective Date of this Consent Decree, Settling Defendants shall designate a Project Coordinator who shall be responsible for administration of all actions required of Settling Defendants in conducting the RI/FS for OU3, and shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present on Site or readily available during the conduct of the RI/FS for OU3. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Settling Defendants shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within 14 days following receipt of EPA's disapproval. Settling Defendants shall have the right to change their Project Coordinator, subject to EPA's right to disapprove. Settling Defendants shall notify EPA at least 30 days before such a change is made. The initial notification may be made orally, but shall be promptly followed by a written notification. Receipt by Settling Defendants' Project Coordinator of any notice or communication from EPA relating to the RI/FS for OU3 pursuant to this Consent Decree shall constitute receipt by Settling Defendants.

3. EPA's Project Coordinator shall have the authority lawfully vested in a remedial Project Manager ("RPM") and On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator shall have the authority consistent with the NCP, to halt any Work required

by this Consent Decree, and to take any necessary response action when he/she determines that conditions at the Site may present an immediate endangerment to public health or welfare or the environment. The absence of EPA's Project Coordinator from the Site shall not be cause for the stoppage or delay of the RI/FS for OU3.

4. EPA will arrange for a qualified person to assist in its oversight and review of the conduct of the RI/FS, as provided in Section 104(a) of CERCLA, 42 U.S.C. § 9604(a). Such person shall have the authority to observe Settling Defendants' performance of the RI/FS for OU3 and make inquiries in the absence of EPA, but not to modify the RI/FS Work Plan.

5. Work to be Performed. Settling Defendants shall conduct the RI/FS for OU3 in accordance with the provisions of this Consent Decree, the Scope of Work for Remedial Investigation and Feasibility Study for OU3 (Appendix D), CERCLA, the NCP, and EPA guidance, including, but not limited to the "Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (OSWER Directive # 9355.3-01 October 1988 or subsequently issued guidance), "Guidance for Data Useability in Risk Assessment" (OSWER Directive #9285.7-05, October 1990 or subsequently issued guidance), and guidance referenced therein, and guidance referenced in the RI/FS SOW for OU3, as may be amended or modified by EPA. The Remedial Investigation ("RI") shall consist of collecting data to characterize OU3 conditions, determining the nature and extent of the contamination at or from OU3, assessing risk to human health and the environment and conducting treatability testing as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. The Feasibility Study ("FS") shall determine and evaluate (based on treatability testing, where appropriate) alternatives for remedial action to prevent, mitigate or otherwise respond to or remedy the release or threatened release of hazardous substances, pollutants, or contaminants at or from OU3. The alternatives evaluated must include, but shall not be limited to, the range of alternatives described in the NCP, and shall include remedial actions that utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In evaluating the alternatives, Settling Defendants shall address the factors required to be taken into account by Section 121 of CERCLA, 42 U.S.C. § 9621, and Section 300.430(e) of the NCP, 40 C.F.R. § 300.430(e). Upon request by EPA, Settling Defendants shall submit in electronic form all portions of any plan, report or other deliverable Settling Defendants are required to submit pursuant to this Consent Decree.

6. (a) Scoping. EPA will determine the Site-specific objectives of the RI/FS for OU3 and devise a general management approach for the Site, as stated in the attached Scope of Work for Remedial Investigation and Feasibility Study for OU3. Settling Defendants shall conduct the remainder of scoping activities as described in the attached Scope of Work for Remedial Investigation and Feasibility Study for OU3 and referenced guidances. At the conclusion of the project planning phase, Settling Defendants shall provide EPA with the following plans, reports, and other deliverables:

(i) RI/FS Work Plan. Within 30 days after the Effective Date of this Consent Decree, Settling Defendants shall submit to EPA a complete RI/FS Work Plan for OU3. Upon its approval by EPA pursuant to Section XI (EPA Approval of Plans and Other

Submissions), the RI/FS Work Plan shall be incorporated into and become enforceable under this Consent Decree.

(ii) Sampling and Analysis Plan. Within 30 days after the Effective Date of this Consent Decree, Settling Defendants shall submit a Sampling and Analysis Plan to EPA for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). This plan shall consist of a Field Sampling Plan ("FSP") and a Quality Assurance Project Plan ("QAPP"), as described in the Scope of Work for Remedial Investigation and Feasibility Study for OU3 and guidances, including, without limitation, "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-02/009, December 2002 or subsequently issued guidance), and "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA 240/B01/003, March 2001 or subsequently issued guidance). Upon its approval by EPA pursuant to Section XI (EPA Approval of Plans and Other Submissions), the Sampling and Analysis Plan shall be incorporated into and become enforceable under this Consent Decree.

(iii) Site Health and Safety Plan. Within 30 days after the Effective Date of this Consent Decree, Settling Defendants shall submit for EPA review and comment a Site Health and Safety Plan that ensures the protection of on-Site workers and the public during performance of on-Site activities required for the performance of the RI/FS for OU3. This plan shall be prepared in accordance with EPA's Standard Operating Safety Guide (PUB 9285.1-03, PB 92-963414, June 1992 or subsequently issued guidance). In addition, the plan shall comply with all currently applicable Occupational Safety and Health ("OSHA") regulations found at 29 C.F.R. Part 1910. If EPA determines that it is appropriate, the plan shall also include contingency planning. Settling Defendants shall incorporate all changes to the plan recommended by EPA and shall implement the plan during the pendency of the RI/FS.

(b) Community Relations Plan. EPA will prepare a community relations plan, in accordance with EPA guidance and the NCP. As requested by EPA, Settling Defendants shall provide information supporting EPA's community relations plan and shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA to explain activities at or concerning the Site.

(c) Site Characterization. Following EPA approval or modification of the RI/FS Work Plan and Sampling and Analysis Plan, Settling Defendants shall complete Site characterization and submit all plans, reports, and other deliverables in accordance with the schedules and deadlines established in this Consent Decree, the Scope of Work for Remedial Investigation and Feasibility Study for OU3, and/or the EPA-approved RI/FS Work Plan and Sampling and Analysis Plan.

(d) Reuse Assessment. If EPA, in its sole discretion, determines that a Reuse Assessment is necessary, Settling Defendants will perform the Reuse Assessment. The Reuse Assessment shall provide sufficient information to develop realistic assumption of the reasonably anticipated future uses for OU3. Settling Defendants shall prepare the Reuse Assessment in accordance with EPA guidance, including, but not limited to: "Reuse Assessments: A Tool to Implement the Superfund Land Use Directive," OSWER Directive 9355.7-06P, June 4, 2001, or subsequently issued guidance.

(e) Baseline Human Health Risk Assessment and Ecological Risk Assessment. Settling Defendants will perform the Baseline Human Health Risk Assessment and Ecological Risk Assessment ("Risk Assessments") in accordance with the RI/FS SOW for OU3, RI/FS Work Plan, and applicable EPA guidance, including but not limited to: "Interim Final Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments)," (RAGS, EPA 540-R-97-033, OSWER Directive 9285.7-01D, January 1998); "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (ERAGS, EPA-540-R-97-006, OSWER Directive 9285.7-25, June 1997) or subsequently issued guidance.

(f) Draft Remedial Investigation Report. Within 30 days after EPA's approval of the Risk Assessments, Settling Defendants shall submit to EPA for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions), a Draft Remedial Investigation Report consistent with the Scope of Work for Remedial Investigation and Feasibility Study for OU3, RI/FS Work Plan, and Sampling and Analysis Plan. The Draft RI Report shall also contain the Risk Assessments.

(g) Treatability Studies. Settling Defendants shall conduct treatability studies, except where Settling Defendants can demonstrate to EPA's satisfaction that they are not needed. The major components of the treatability studies are described in the Scope of Work for Remedial Investigation and Feasibility Study for OU3. In accordance with the schedules or deadlines established in this Consent Decree, the Scope of Work for Remedial Investigation and Feasibility Study for OU3, and/or the EPA-approved RI/FS Work Plan, Settling Defendants shall provide EPA with the following plans, reports, and other deliverables for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions):

(i) Identification of Candidate Technologies Memorandum. This memorandum shall be submitted as specified by EPA.

(ii) Treatability Testing Statement of Work. If EPA determines that treatability testing is required, as specified by EPA Settling Defendants shall submit a Treatability Testing Statement of Work ("TTSOW").

(iii) Treatability Testing Work Plan. Within 30 days after submission of the TTSOW, Settling Defendants shall submit a Treatability Testing Work Plan, including a schedule.

(iv) Treatability Study Sampling and Analysis Plan. Within 30 days after identification of the need for a separate or revised QAPP or FSP, Settling Defendants shall submit a Treatability Study Site Health and Safety Plan.

(v) Treatability Study Site Health and Safety Plan. Within 30 days after the identification of the need for a revised Health and Safety Plan, Settling Defendants shall submit a Treatability Study Site Health and Safety Plan.

(vi) **Treatability Study Evaluation Report.** Within 30 days after completion of any treatability testing, Settling Defendants shall submit a treatability study evaluation report as provided in the Statement of Work and Work Plan.

(h) **Development and Screening of Alternatives.** Settling Defendants shall develop an appropriate range of waste management options that will be evaluated through the development and screening of alternatives, as provided in the Scope of Work for Remedial Investigation and Feasibility Study for OU3 and RI/FS Work Plan. In accordance with the schedules or deadlines established in this Consent Decree, the Scope of Work for Remedial Investigation and Feasibility Study for OU3 and/or the EPA-approved RI/FS Work Plan, Settling Defendants shall provide EPA with the following deliverables for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions):

(i) **Memorandum on Remedial Action Objectives.** This Memorandum shall include remedial action objectives for Engineering Controls as well as for Institutional Controls.

(ii) **Memorandum on Development and Screening of Alternatives.** This Memorandum shall summarize the development and screening of remedial alternatives.

(i) **Detailed Analysis of Alternatives.** Settling Defendants shall conduct a detailed analysis of remedial alternatives, as described in the Scope of Work for Remedial Investigation and Feasibility Study for OU3, and the EPA-approved RI/FS Work Plan. Settling Defendants shall provide EPA with the following deliverables and presentation for review and approval pursuant for Section XI (EPA Approval of Plans and Other Submissions):

(i) **Report on Comparative Analysis and Presentation to EPA.** Within 30 days after EPA's approval of the Remedial Investigation Report for OU3, Settling Defendants will submit a report on comparative analysis to EPA. Within 30 days of submitting the report on comparative analysis, Settling Defendants will present to EPA a summary of the findings of the remedial investigation and remedial action objectives, and present the results of the nine criteria evaluation and comparative analysis, as described in the Scope of Work for Remedial Investigation and Feasibility Study for OU3.

(ii) **Alternatives Analysis for Institutional Controls and Screening.** Settling Defendants shall submit a memorandum on the Institutional Controls identified in the Memorandum on Development and Screening of Alternatives as potential remedial actions. The Alternatives Analysis for Institutional Controls and Screening shall: (A) state the objectives (i.e., what will be accomplished) for the Institutional Controls; (B) determine the specific types of Institutional Controls that can be used to meet the remedial action objectives; (C) investigate when the Institutional Controls need to be implemented and/or secured and how long they must be in place; and (D) research, discuss, and document any agreement with the proper entities (e.g., state, local government entities, local landowners, conservation organizations, Settling Defendants) on exactly who will be responsible for securing, maintaining, and enforcing the Institutional Controls. The Alternatives Analysis for Institutional Controls and Screening shall also evaluate the Institutional Controls identified in the Memorandum on Development and Screening of Alternatives against the nine evaluation criteria outlined in the NCP (40 C.F.R. §

300.430(e)(9)(iii)) for CERCLA cleanups, including but not limited to costs to implement, monitor, and/or enforce the Institutional Controls. The Alternatives Analysis for Institutional Controls and Screening shall be submitted as an appendix to the Draft Feasibility Study Report.

(iii) Draft Feasibility Study Report. Within 30 days after the presentation to EPA described in Paragraph 6(i)(i) above, Settling Defendants shall submit to EPA a Draft Feasibility Study Report which reflects the findings in the Risk Assessments. Settling Defendants shall refer to Table 6-5 of the RI/FS Guidance for report content and format. The report as amended, and the administrative record, shall provide the basis for the proposed plan under CERCLA Sections 113(k) and 117(a), 42 U.S.C. §§ 9613(k) and 9617(a), by EPA, and shall document the development and analysis of remedial alternatives.

8. Upon receipt of the Draft FS report, EPA will evaluate, as necessary, the estimates of the risk to the public and environment that are expected to remain after a particular remedial alternative has been completed and will evaluate the durability, reliability, and effectiveness of any proposed Institutional Controls.

9. Modification of the RI/FS Work Plan.

(a) If at any time during the RI/FS process, Settling Defendants identify a need for additional data, Settling Defendants shall submit a memorandum documenting the need for additional data to EPA's Project Coordinator within 30 days of identification. EPA in its discretion will determine whether the additional data will be collected by Settling Defendants and whether it will be incorporated into plans, reports, and other deliverables.

(b) In the event of unanticipated or changed circumstances at the Site, Settling Defendants shall notify EPA's Project Coordinator by telephone within 24 hours of discovery of the unanticipated or changed circumstances. In the event that EPA determines that the immediate threat or the unanticipated or changed circumstances warrant changes in the RI/FS Work Plan, EPA will modify or amend the RI/FS Work Plan in writing accordingly. Settling Defendants shall perform the RI/FS Work Plan as modified or amended.

(c) EPA may determine that in addition to tasks defined in the initially approved RI/FS Work Plan, other additional work may be necessary to accomplish the objectives of the RI/FS. Settling Defendants agree to perform this work in addition to those required by the initially approved RI/FS Work Plan, including any approved modifications, if EPA determines that such work is necessary for a complete RI/FS.

(d) Settling Defendants shall confirm their willingness to perform the additional work in writing to EPA within 7 days of receipt of EPA's request. If Settling Defendants object to any modification determined by EPA to be necessary pursuant to this Paragraph, Settling Defendants may seek dispute resolution pursuant to Section XIX (Dispute Resolution). The Scope of Work for Remedial Investigation and Feasibility Study for OU3 and/or RI/FS Work Plan shall be modified in accordance with the final resolution of the dispute.

(e) Settling Defendants shall complete the additional work according to the standards, specifications, and schedule set forth or approved by EPA in a written modification to the RI/FS Work Plan or written RI/FS Work Plan supplement. EPA reserves the right to conduct

the work itself at any point, to seek reimbursement from Settling Defendants, and/or to seek any other appropriate relief.

(f) Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions for OU3 at the Site.

C. RD/RA FOR OU3

1. Selection of Supervising Contractor.

(a) All aspects of the Work to be performed by Settling Defendants in conducting the RD/RA for OU3 pursuant to this Consent Decree shall be under the direction and supervision of a Supervising Contractor, the selection of which shall be subject to disapproval by EPA after a reasonable opportunity for review and comment by the State. Within 10 days after EPA's issuance of a ROD for OU3, Settling Defendants shall notify EPA and the State in writing of the name, title, and qualifications of any contractor proposed to be their Supervising Contractor for the RD/RA for OU3. With respect to any contractor proposed to be Supervising Contractor, Settling Defendants shall demonstrate that the proposed contractor has a quality system that complies with ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), by submitting a copy of the proposed contractor's Quality Management Plan (QMP). The QMP should be prepared in accordance with "EPA Requirements for QMPs (QA/R-2)" (EPA/240/B-01/001, March 2001) or equivalent documentation as determined by EPA. EPA will issue a notice of disapproval or an authorization to proceed. If at any time thereafter, Settling Defendants propose to change a Supervising Contractor, Settling Defendants shall give such notice to EPA and the State, and must obtain an authorization to proceed from EPA, after reasonable opportunity for review and comment by the State, before the new Supervising Contractor performs, directs, or supervises any Work under this Consent Decree.

(b) If EPA disapproves a proposed Supervising Contractor, EPA will notify Settling Defendants in writing. Settling Defendants shall submit to EPA and the State a list of contractors, including the qualifications of each contractor, that would be acceptable to them within 30 days of receipt of EPA's disapproval of the contractor previously proposed. EPA will provide written notice of the names of any contractor(s) that it disapproves and an authorization to proceed with respect to any of the other contractors. Settling Defendants may select any contractor from that list that is not disapproved and shall notify EPA and the State of the name of the contractor within 21 days of EPA's authorization to proceed.

(c) If EPA fails to provide written notice of its authorization to proceed or disapproval as provided in this Paragraph and this failure prevents Settling Defendants from meeting one or more deadlines in a plan pertaining to the performance of the RD/RA for OU3 approved by EPA pursuant to this Consent Decree, Settling Defendants may seek relief under the provisions of Section XVIII (Force Majeure) hereof.

2. Remedial Design for OU3.

(a) Within 30 days after EPA's issuance of an authorization to proceed pursuant to Paragraph 1(a) above, Settling Defendants shall submit to EPA and the State a work plan for the design of the Remedial Action for OU3 at the Site ("OU3 Remedial Design Work Plan" or "OU3 RD Work Plan"). The OU3 RD Work Plan shall provide for the design of the remedy set forth in EPA's Record of Decision (ROD) for OU3 ("OU3 ROD"), in accordance with any EPA-issued SOW for the performance of the RD for OU3 and for the achievement of the OU3 Performance Standards and other requirements set forth in the OU3 ROD, this Consent Decree and/or the RD/RA SOW for OU3. Upon its approval by EPA, the OU3 RD Work Plan shall be incorporated into and become enforceable under this Consent Decree. Within 30 days after EPA's issuance of an authorization to proceed, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for OU3 field design activities which conforms to the applicable OSHA and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

(b) The OU3 RD Work Plan shall include plans and schedules for implementation of all remedial design and pre-design tasks identified in the RD/RA SOW for OU3, including, but not limited to, plans and schedules for the completion of: (1) the design sampling and analysis plan (including, but not limited to, a Remedial Design Quality Assurance Project Plan (RD QAPP) in accordance with Section VIII (Quality Assurance, Sampling and Data Analysis)); (2) a Construction Quality Assurance Plan; and (3) an Institutional Control Implementation and Assurance Plan (ICIAP); and may also include: (i) a treatability study; (ii) a Pre-design Work Plan; (iii) a preliminary design submission; (iv) an intermediate design submission; and (v) a pre-final/final design submission. In addition, the OU3 RD Work Plan shall include a schedule for completion of the OU3 Remedial Action Work Plan.

(c) Upon approval of the OU3 RD Work Plan by EPA, after a reasonable opportunity for review and comment by the State, and submittal of the Health and Safety Plan for all OU3 RD/RA field activities to EPA and the State, Settling Defendants shall implement the OU3 RD Work Plan. Settling Defendants shall submit to EPA and the State all plans, submittals, and other deliverables required under the approved OU3 RD Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, Settling Defendants shall not commence further Remedial Design activities for OU3 at the Site prior to approval of the OU3 RD Work Plan.

(d) The preliminary design submittal shall include, at a minimum, the following: (i) design criteria; (ii) results of treatability studies; (iii) results of additional field sampling and predesign work; (iv) project delivery strategy; (v) preliminary plans, drawings and sketches; (vi) required specifications in outline form; and (vii) preliminary construction schedule.

(e) The intermediate design submittal, if required by EPA or if independently submitted by Settling Defendants, shall be a continuation and expansion of the preliminary design. Any value engineering proposals must be identified and evaluated during this review.

(f) The pre-final/final design submittal shall include, at a minimum, the following: (i) final plans and specifications; (ii) Operation and Maintenance Plan; (iii) Construction Quality Assurance Project Plan ("CQAPP"); (iv) Field Sampling Plan (directed at measuring progress towards meeting Performance Standards for OU3); and (v) Contingency

Plan. The CQAPP, which shall detail the approach to quality assurance during OU3 construction activities at the Site, shall specify a quality assurance official ("QA Official"), independent of the Supervising Contractor for the RD/RA for OU3, to conduct a quality assurance program during the construction phase of the project.

3. Remedial Action

(a) Within 30 days following Settling Defendants' receipt of EPA's approval of the final design submittal for OU3, Settling Defendants shall submit to EPA and the State a work plan for the performance of the Remedial Action for OU3 at the Site ("OU3 RA Work Plan"). The OU3 RA Work Plan shall provide for construction and implementation of the remedy set forth in the ROD for OU3 and achievement of the OU3 Performance Standards, in accordance with this Consent Decree, the ROD for OU3, the RD/RA SOW for OU3, and the design plans and specifications developed in accordance with the OU3 RD Work Plan and approved by EPA. Upon its approval by EPA, the OU3 RA Work Plan shall be incorporated into and become enforceable under this Consent Decree. At the same time as they submit the OU3 RA Work Plan, Settling Defendants shall submit to EPA and the State a Health and Safety Plan for field activities required by the OU3 RA Work Plan which conforms to the applicable OSHA and EPA requirements including, but not limited to, 29 C.F.R. § 1910.120.

(b) The OU3 RA Work Plan shall include the following: (i) schedule for completion of the Remedial Action for OU3; (ii) method for selection of contractor; (iii) schedule for developing and submitting other required OU3 Remedial Action plans; (iv) groundwater monitoring plan; (v) methods for satisfying permitting requirements; (vi) methodology for implementation of the Operation and Maintenance Plan; (vii) methodology for implementation of the Contingency Plan; (viii) tentative formulation of the OU3 Remedial Action team; (ix) construction quality control plan (by constructor); and (x) procedures and plans for the decontamination of equipment and the disposal of contaminated materials. The OU3 RA Work Plan also shall include the methodology for implementation of the Construction Quality Assurance Plan and a schedule for implementation of all OU3 Remedial Action tasks identified in the final design submittal and shall identify the initial formulation of Settling Defendants' Remedial Action Project Team (including, but not limited to, the RD/RA Supervising Contractor for OU3).

(c) Upon approval of the OU3 RA Work Plan by EPA, after a reasonable opportunity for review and comment by the State, and submittal of the Health and Safety Plan for all field activities to EPA and the State, Settling Defendants shall implement the OU3 RA Work Plan. Settling Defendants shall submit to EPA and the State all plans, submittals and other deliverables required under the approved OU3 RA Work Plan in accordance with the approved schedule for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Unless otherwise directed by EPA, Settling Defendants shall not commence further Remedial Design activities for OU3 at the Site prior to approval of the OU3 RA Work Plan.

(d) Settling Defendants shall continue to implement the OU3 Remedial Action and O&M until the Performance Standards for OU3 are achieved and for so long thereafter as is otherwise required under the Consent Decree.

4. Modification of the OU3 SOW or Related Work Plans.

(a) If EPA determines that modification to the work specified in the RD/RA SOW for OU3 and/or in work plans developed pursuant to the RD/RA SOW for OU3 is necessary to achieve and maintain the Performance Standards for OU3 or to carry out and maintain the effectiveness of the remedy set forth in the OU3 ROD, EPA may require that such modification be incorporated in the RD/RA SOW for OU3 and/or such work plans, provided, however, that a modification may only be required pursuant to this Paragraph to the extent that it is consistent with the scope of the remedy selected in the OU3 ROD.

(b) For the purposes of this Paragraph and Section XIV (Certification of Completion), Paragraph 1 only, the "scope of the remedy selected in the ROD" is defined as the remedial actions required to address the unacceptable risks present at OU3, as detailed in the OU3 ROD.

(c) If Settling Defendants object to any modification determined by EPA to be necessary pursuant to this Paragraph, they may seek dispute resolution pursuant to Section XIX (Dispute Resolution), Paragraph 4 (record review). The RD/RA SOW for OU3 and/or related work plans shall be modified in accordance with final resolution of the dispute.

(d) Settling Defendants shall implement any work required by any modification incorporated in the RD/RA SOW for OU3 and/or in work plans developed pursuant to the RD/RA SOW for OU3 in accordance with this Paragraph.

(e) Nothing in this Paragraph shall be construed to limit EPA's authority to require performance of further response actions for OU3 as otherwise provided in this Consent Decree.

5. Settling Defendants acknowledge and agree that nothing in Consent Decree, the RD/RA SOW for OU3, or OU3 RD or RA Work Plans constitute a warranty or representation of any kind by Plaintiffs that compliance with the work requirements set forth in the RD/RA SOW for OU3 and the OU3 Work Plans will achieve the Performance Standards for OU3.

VII. REMEDY REVIEW

1. Periodic Review. Settling Defendants shall conduct any studies and investigations as requested by EPA, in order to permit EPA to conduct reviews of whether the Remedial Actions for the Site remain protective of human health and the environment at least every five years as required by Section 121(c) of CERCLA and any applicable regulations.

2. EPA Selection of Further Response Actions. If EPA determines, at any time, that the Remedial Actions for the Site are not protective of human health and the environment, EPA may select further response actions for the Site in accordance with the requirements of CERCLA and the NCP.

3. Opportunity To Comment. Settling Defendants and, if required by Sections 113(k)(2) or 117 of CERCLA, the public, will be provided with an opportunity to comment on any further response actions proposed by EPA as a result of the review conducted pursuant to

Section 121(c) of CERCLA and to submit written comments for the record during the comment period.

4. Settling Defendants' Obligation to Perform Further Response Actions. If EPA selects further response actions for the Site, Settling Defendants shall undertake such further response actions to the extent that the reopener conditions in Section XXI (Covenants by Plaintiffs) Paragraphs 3 or 4 (United States' reservations of liability based on unknown conditions or new information) are satisfied. Settling Defendants may invoke the procedures set forth in Section XIX (Dispute Resolution) to dispute: (a) EPA's determination that the reopener conditions of Section XXI (Covenants by Plaintiffs) are satisfied; (b) EPA's determination that a Remedial Action is not protective of human health and the environment; or (c) EPA's selection of further response actions shall be resolved pursuant to Section XIX (Dispute Resolution) Paragraph 4 (record review).

5. Submissions of Plans. If Settling Defendants are required to perform further response actions pursuant to the preceding Paragraph, they shall submit a plan or plans for such work to EPA for approval in accordance with the procedures set forth in Section VI (Performance of the Work by Settling Defendants) and shall implement the plan(s) approved by EPA in accordance with the provisions of this Consent Decree.

VIII. QUALITY ASSURANCE, SAMPLING, AND DATA ANALYSIS

1. Settling Defendants shall use quality assurance, quality control, and chain of custody procedures for all samples in accordance "EPA Requirements for Quality Assurance Project Plans (QA/R5)" (EPA/240/B01/003, March 2001) "Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998), and subsequent amendments to such guidelines upon notification by EPA to Settling Defendants of such amendment. Amended guidelines shall apply only to procedures conducted after such notification. Prior to the commencement of any monitoring project under this Consent Decree, Settling Defendants shall submit to EPA for approval, after a reasonable opportunity for review and comment by the State, a quality assurance project plan ("QAPP") that is consistent with each applicable SOW, the NCP and applicable guidance documents. If relevant to the proceeding, the Parties agree that validated sampling data generated in accordance with the QAPP(s) and reviewed and approved by EPA shall be admissible as evidence, without objection, in any proceeding under this Consent Decree. Settling Defendants shall ensure EPA and State personnel and their authorized representatives are allowed access at reasonable times to all laboratories utilized by Settling Defendants in implementing this Consent Decree. In addition, Settling Defendants shall ensure that such laboratories shall analyze all samples submitted by EPA pursuant to the QAPP for quality assurance monitoring. Settling Defendants shall ensure that the laboratories they utilize for the analysis of samples taken pursuant to this Consent Decree perform all analyses according to accepted EPA methods. Accepted EPA methods consist of those methods which are documented in the "Contract Lab Program Statement of Work for Inorganic Analysis" and the "Contract Lab Program Statement of Work for Organic Analysis," dated February 1988, and any amendments made thereto during the course of the implementation of this Consent Decree; however, upon approval by EPA, after opportunity for review and comment by the State, Settling Defendants may use other analytical methods which are as stringent as or more stringent than the CLP-approved.

methods. Settling Defendants shall ensure that all laboratories that they use for analysis of samples taken pursuant to this Consent Decree participate in an EPA or EPA-equivalent QA/QC program. Settling Defendants shall only use laboratories that have a documented Quality System which complies with ANSI/ASQC E4 1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs," (American National Standard, January 5, 1995), and "EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B01/002, March 2001) or equivalent documentation as determined by EPA. EPA may consider laboratories accredited under the National Environmental Laboratory Accreditation Program ("NELAP") as meeting the Quality System requirements. Settling Defendants shall ensure that all field methodologies utilized in collecting samples for subsequent analysis pursuant to this Consent Decree will be conducted in accordance with the procedures set forth in the QAPP approved by the EPA.

2. Upon request, Settling Defendants shall allow split or duplicate samples to be taken by EPA and/or the State or their authorized representatives. Settling Defendants shall notify EPA and the State not less than 28 days in advance of any sample collection activity unless shorter notice is agreed to by EPA. In addition, EPA and the State shall have the right to take any additional samples that EPA or the State deems necessary. Upon request, EPA or the State will allow Settling Defendants to take split or duplicate samples of any samples it takes as part of Plaintiffs' oversight of Settling Defendants' implementation of the Work.

3. Settling Defendants shall submit to EPA and the State 2 copies of the results of all sampling and/or tests or other data obtained or generated by or on behalf of Settling Defendants with respect to the Site and/or the implementation of this Consent Decree unless EPA agrees otherwise.

4. Notwithstanding any provision of this Consent Decree, the United States and the State hereby retain all of their information gathering and inspection authorities and rights, including enforcement actions related thereto, under CERCLA, RCRA, or any other applicable statutes or regulations.

IX. ACCESS AND INSTITUTIONAL CONTROLS

1. If the Site, or any other property where access or institutional controls are needed to implement this Consent Decree, is owned or controlled by any of Settling Defendants, such Settling Defendants shall:

(a) Commencing on the date of lodging this Consent Decree, provide the United States, the State, and their representatives, including EPA and its contractors, with access at all reasonable times to the Site, or such other property, for the purpose of conducting any activity related to this Consent Decree including, but not limited to, the following activities:

(i) Monitoring the Work;

(ii) Verifying any data or information submitted to the United States or the State;

- (iii) Conducting investigations relating to contamination at or near the Site;
 - (iv) Obtaining samples;
 - (v) Assessing the need for, planning, or implementing additional response actions at or near the Site;
 - (vi) Assessing implementation of quality assurance and quality control practices as defined in the EPA-approved QAPP;
 - (vii) Implementing the Work pursuant to the conditions set forth in Section XXI (Covenants by Plaintiffs), Paragraph 7 (Work Takeover) of this Consent Decree;
 - (viii) Inspecting and copying records, operating logs, contracts, or other documents maintained or generated by Settling Defendants or their agents, consistent with Section XXIV (Access to Information):
 - (ix) Assessing Settling Defendants' compliance with this Consent Decree;
 - (x) Determining whether the Site or other property is being used in a manner that is prohibited or restricted, or that may need to be prohibited or restricted, by or pursuant to this Consent Decree; and
 - (xi) Implementing, monitoring, or enforcing any institutional controls.
- (b) Commencing on the date of lodging of this Consent Decree, refrain from using the Site, or such other property, in any manner that would interfere with or adversely affect the implementation, integrity, or protectiveness of the remedial actions to be performed pursuant to this Consent Decree; and
- (c) Execute and record in the Recorder's Office of Cape Girardeau County, State of Missouri, a covenant or other instrument acceptable to EPA, that (i) grants a right of access for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 1(a) of this Section, and (ii) grants the right to enforce the land/water use restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial actions to be performed pursuant to this Consent Decree. Such Settling Defendants shall grant the access rights and the rights to enforce the land/water use restrictions to (i) the United States, on behalf of EPA, and its representatives, (ii) the State and its representatives, (iii) the other Settling Defendants and their representatives, and/or (iv) other appropriate grantees. Such Defendants shall, within 45 days of entry of this Consent Decree, submit to EPA for review and approval with respect to such property:
- i. A draft covenant or other appropriate instrument, in substantially the form attached hereto as Appendix F, that is enforceable under the laws of the State of Missouri, and
 - ii. A current title insurance commitment or some other evidence of title acceptable to EPA, which shows title to the land described in the covenant/instrument to be free and clear of all prior liens and encumbrances (except when those liens or encumbrances are

approved by EPA or when, despite best efforts, Settling Defendants are unable to obtain release or subordination of such prior liens or encumbrances).

(d) Within 15 days of EPA's approval and acceptance of the covenant/instrument and the title evidence, such Settling Defendants shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment to affect the title adversely, record the covenant/instrument with the Recorder's Office of Cape Girardeau County, Missouri. Within 30 days of recording the covenant/instrument, such Settling Defendants shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded covenant/instrument showing the clerk's recording stamps.

2. If the Site, or any other property where access and/or land/water use restrictions are needed to implement this Consent Decree, is owned or controlled by persons other than any of Settling Defendants, Settling Defendants shall use best efforts to secure from such persons:

(a) an agreement to provide access thereto for Settling Defendants, as well as for the United States on behalf of EPA, and the State, as well as their representatives (including contractors), for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 1(a) of this Section.

(b) an agreement, enforceable by Settling Defendants and the United States, to refrain from using the Site, or such other property, in any manner that would interfere with or adversely affect the implementation, integrity, or protectiveness of the remedial actions to be performed pursuant to this Consent Decree; and

(c) the execution and recordation in the Recorder's Office of Cape Girardeau County, Missouri, of a covenant, or other instrument acceptable to EPA, running with the land, that (i) grants a right of access for the purpose of conducting any activity related to this Consent Decree including, but not limited to, those activities listed in Paragraph 1(a) of this Section, and (ii) grants the right to enforce the land/water use restrictions listed in Paragraph 1(a) of this Section, or other restrictions that EPA determines are necessary to implement, ensure non-interference with, or ensure the protectiveness of the remedial measures to be performed pursuant to this Consent Decree. The access rights and/or rights to enforce land/water use restrictions shall be granted to: (i) the United States, on behalf of EPA, and its representatives; (ii) the State and its representatives; (iii) Settling Defendants and their representatives; and/or (iv) other appropriate grantees. Within 45 days of entry of this Consent Decree, Settling Defendants shall submit to EPA for review and approval with respect to such property:

i. A draft covenant/or other appropriate instrument, in substantially the form attached hereto as Appendix F, that is enforceable under the laws of the State of Missouri, and

ii. A current title insurance commitment, or some other evidence of title acceptable to EPA, which shows title to the land described in the covenant/instrument to be free and clear of all prior liens and encumbrances (except when those liens or encumbrances are approved by EPA or when, despite best efforts, Settling Defendants are unable to obtain release or subordination of such prior liens or encumbrances).

(d) Within 15 days of EPA's approval and acceptance of the covenant/instrument and the title evidence, Settling Defendants shall update the title search and, if it is determined that nothing has occurred since the effective date of the commitment to affect the title adversely, the covenant/instrument shall be recorded with the Recorder's Office of Cape Girardeau County, Missouri. Within 30 days of the recording of the covenant/instrument, Settling Defendants shall provide EPA with a final title insurance policy, or other final evidence of title acceptable to EPA, and a certified copy of the original recorded covenant/instrument showing the clerk's recording stamps.

3. For purposes of Section IX (Access and Institutional Controls), Paragraphs 1 and 2, of this Consent Decree, "best efforts" includes the payment of reasonable sums of money in consideration of access, access agreements, land/water use restrictions, and/or an agreement to release or subordinate a prior lien or encumbrance. If (a) any access or land/water use restrictions required by the two preceding Paragraphs are not obtained within 45 days of the date of entry of this Consent Decree, (b) or any access or land/water use restrictions required by this Section are not submitted to EPA in draft form within 45 days of the date of entry of this Consent Decree, or (c) Settling Defendants are unable to obtain an agreement pursuant to this Section, from the holder of a prior lien or encumbrance to release or subordinate such lien or encumbrance to the land/water use restrictions being created pursuant to this Consent Decree within 45 days of the date of entry of this Consent Decree, Settling Defendants shall promptly notify the United States in writing, and shall include in that notification a summary of the steps that Settling Defendants have taken to attempt to comply with this Section of this Consent Decree. The United States may, as it deems appropriate, assist Settling Defendants in obtaining access or land/water use restrictions, either in the form of contractual agreements or in the form of land/water use restrictions running with the land, or in obtaining the release or subordination of a prior lien or encumbrance. Settling Defendants shall reimburse the United States in accordance with the procedures in Section XVI (Payments for Response Costs), for all costs incurred, direct or indirect, by the United States in obtaining such access, land/water use restrictions, and/or the release/subordination of prior liens or encumbrances including, but not limited to, the cost of attorney time and the amount of monetary consideration paid or just compensation.

4. If EPA determines that land/water use restrictions in the form of state or local laws, regulations, ordinances or other governmental controls are needed to implement a remedy selected in a ROD for OU2 or OU3 at the Site, ensure the integrity and protectiveness thereof, or ensure non-interference therewith, Settling Defendants shall cooperate with EPA's and the State's efforts to secure such governmental controls.

5. Notwithstanding any provision of this Consent Decree, the United States and the State retain all of their access authorities and rights, as well as all of their rights to require land/water use restrictions, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statute or regulations.

X. REPORTING REQUIREMENTS

1. In addition to any other requirement of this Consent Decree, Settling Defendants shall submit to EPA and the State 2 copies of written monthly progress reports that: (a) describe the actions which have been taken toward achieving compliance with this Consent Decree during

the previous month; (b) include a summary of all results of sampling and tests and all other data received or generated by Settling Defendants or their contractors or agents in the previous month; (c) identify all work plans, plans, and other deliverables required by this Consent Decree completed and submitted during the previous month; (d) describe all actions, including, but not limited to, data collection and implementation of work plans, which are scheduled for the next 6 weeks and provide other information relating to the progress of construction, including, but not limited to, critical path diagrams, Gantt charts and Pert charts; (e) include information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the Work, and a description of efforts made to mitigate those delays or anticipated delays; (f) include any modifications to the work plans or other schedules that Settling Defendants have proposed to EPA or that have been approved by EPA; and (g) describe all activities undertaken in support of the Community Relations Plan during the previous month and those to be undertaken in the next 6 weeks. Settling Defendants shall submit these progress reports to EPA and the State by the 10th day of every month following the lodging of this Consent Decree until EPA notifies Settling Defendants pursuant to Section XIV (Certification of Completion). If requested by EPA, or the State, Settling Defendants shall also provide briefings for EPA, and the State to discuss the progress of the Work.

2. Settling Defendants shall notify EPA of any change in the schedule described in the monthly progress report for the performance of any activity, including, but not limited to, data collection and implementation of work plans, no later than 7 days prior to the performance of the activity.

3. Upon the occurrence of any event during performance of the Work that Settling Defendants are required to report pursuant to Section 103 of CERCLA or Section 304 of the Emergency Planning and Community Right-to-Know Act ("EPCRA"), Settling Defendants shall within 24 hours of the onset of such event orally notify EPA's Project Coordinator or in the event of the unavailability of the EPA Project Coordinator, the EPA Region VII Spill Line at 913-281-0991. These reporting requirements are in addition to the reporting required by CERCLA Section 103 or EPCRA Section 304.

4. Within 20 days of the onset of such an event, Settling Defendants shall furnish to Plaintiffs a written report, signed by Settling Defendants' Project Coordinator, setting forth the events which occurred and the measures taken, and to be taken, in response thereto. Within 30 days of the conclusion of such an event, Settling Defendants shall submit a report setting forth all actions taken in response thereto.

5. Settling Defendants shall submit 2 copies of all plans, reports, and data required by a SOW, a Work Plan, or any other approved plans to EPA in accordance with the schedules set forth in such plans. Settling Defendants shall simultaneously submit 2 copies of all such plans, reports, and data to the State. Upon request by EPA, Settling Defendants shall submit in electronic form all portions of any report or other deliverable Settling Defendants are required to submit pursuant to this Consent Decree.

6. All reports and other documents submitted by Settling Defendants to EPA (other than the monthly progress reports referred to above) which purport to document Settling

Defendants' compliance with the terms of this Consent Decree shall be signed by an authorized representative of Settling Defendants.

XI. EPA APPROVAL OF PLANS AND OTHER SUBMISSIONS

1. After review of any plan, report or other item which is required to be submitted for approval pursuant to this Consent Decree, EPA, after reasonable opportunity for review and comment by the State, shall: (a) approve, in whole or in part, the submission; (b) approve the submission upon specified conditions; (c) modify the submission to cure the deficiencies; (d) disapprove, in whole or in part, the submission, directing that Settling Defendants modify the submission; or (e) any combination of the above. However, EPA will not modify a submission without first providing Settling Defendants at least one notice of deficiency and an opportunity to cure within 14 days, except where to do so would cause serious disruption to the Work or where previous submission(s) have been disapproved due to material defects and the deficiencies in the submission under consideration indicate a bad faith lack of effort to submit an acceptable deliverable.

2. In the event of approval, approval upon conditions, or modification by EPA, pursuant to (a), (b), or (c) of the preceding Paragraph, Settling Defendants shall proceed to take any action required by the plan, report, or other item, as approved or modified by EPA subject only to their right to invoke the Dispute Resolution procedures set forth in Section XIX (Dispute Resolution) with respect to the modifications or conditions made by EPA. In the event that EPA modifies the submission to cure the deficiencies pursuant to (c) of the preceding Paragraph and the submission has a material defect, EPA retains its right to seek stipulated penalties, as provided in Section XX (Stipulated Penalties).

3. **Resubmission of Plans.**

(a) Upon receipt of a notice of disapproval pursuant to Paragraph 1(d) of this Section, Settling Defendants shall, within 14 days or such longer time as specified by EPA in such notice, correct the deficiencies and resubmit the plan, report, or other item for approval. Any stipulated penalties applicable to the submission, as provided in Section XX, shall accrue during the 14-day period or otherwise specified period but shall not be payable unless the resubmission is disapproved or modified due to a material defect as provided in Paragraphs 4 and 5 of this Section.

(b) Notwithstanding the receipt of a notice of disapproval pursuant to Paragraph 1(d) of this Section, Settling Defendants shall proceed, at the direction of EPA, to take any action required by any non-deficient portion of the submission. Implementation of any non-deficient portion of a submission shall not relieve Settling Defendants of any liability for stipulated penalties under Section XX (Stipulated Penalties).

4. In the event that a resubmitted plan, report or other item, or portion thereof, is disapproved by EPA, EPA may again require Settling Defendants to correct the deficiencies, in accordance with the preceding Paragraphs. EPA also retains the right to modify or develop the plan, report or other item. Settling Defendants shall implement any such plan, report, or item as modified or developed by EPA, subject only to their right to invoke the procedures set forth in Section XIX (Dispute Resolution).

5. If upon resubmission, a plan, report, or item is disapproved or modified by EPA due to a material defect, Settling Defendants shall be deemed to have failed to submit such plan, report, or item timely and adequately unless Settling Defendants invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution) and EPA's action is overturned pursuant to that Section. The provisions of Section XIX (Dispute Resolution) and Section XX (Stipulated Penalties) shall govern the implementation of the Work and accrual and payment of any stipulated penalties during Dispute Resolution. If EPA's disapproval or modification is upheld, stipulated penalties shall accrue for such violation from the date on which the initial submission was originally required, as provided in Section XX.

6. All plans, reports, and other items required to be submitted to EPA under this Consent Decree shall, upon approval or modification by EPA, be enforceable under this Consent Decree. In the event that EPA approves or modifies a portion of a plan, report, or other item required to be submitted to EPA under this Consent Decree, the approved or modified portion shall be enforceable under this Consent Decree.

XII. PROJECT COORDINATORS

1. Within 20 days of lodging this Consent Decree, Settling Defendants, the State and EPA will notify each other, in writing, of the name, address and telephone number of their respective designated Project Coordinator(s) and Alternate Project Coordinator(s) for those phases of the Work pertaining to the RD/RA for OU2 and the RI/FS for OU3. Following the issuance of the ROD for OU3, EPA will issue to Settling Defendants a SOW for the RD/RA for OU3 which will contain a schedule for designation by the Parties of their respective designated Project Coordinator(s) and Alternate Project Coordinator(s) for the RD/RA for OU3. If a Project Coordinator or Alternate Project Coordinator initially designated is changed, the identity of the successor will be given to the other Parties at least 5 working days before the changes occur, unless impracticable, but in no event later than the actual day the change is made. Settling Defendants' Project Coordinator shall be subject to disapproval by EPA and shall have the technical expertise sufficient to adequately oversee all aspects of the phases of Work for which that person is responsible. Settling Defendants' Project Coordinator shall not be an attorney for any of Settling Defendants in this matter. He or she may assign other representatives, including other contractors, to serve as a Site representative for oversight of performance of daily operations during remedial activities.

2. Plaintiffs may designate other representatives, including, but not limited to, EPA and State employees, and federal, and State contractors and consultants, to observe and monitor the progress of any activity undertaken pursuant to this Consent Decree. EPA's Project Coordinator and Alternate Project Coordinator shall have the authority lawfully vested in a Remedial Project Manager ("RPM") and an On-Scene Coordinator ("OSC") by the NCP. In addition, EPA's Project Coordinator or Alternate Project Coordinator shall have authority, consistent with the NCP, to halt any Work required by this Consent Decree and to take any necessary response action when s/he determines that conditions at the Site constitute an emergency situation or may present an immediate threat to public health or welfare or the environment due to release or threatened release of Waste Material.

XIII. PERFORMANCE GUARANTEE

1. In order to ensure the full and final completion of all phases of the Work, Settling Defendants shall establish and maintain a Performance Guarantee, or Performance Guarantees, for the benefit of EPA in the amount of the estimated cost to perform each phase of Work (the RD/RA for OU2, the RI/FS for OU3, and the RD/RA for OU3). Within 30 days after the (a) Effective Date of this Consent Decree, (b) issuance by EPA of the ROD for OU3, Settling Defendants shall submit cost estimates to EPA for review and approval pursuant to Section XI (EPA Approval of Plans and Other Submissions) for such phases of the Work. The cost estimates shall be in one or more of the following forms, which must be satisfactory in form and substance to EPA:

a. A surety bond or bonds unconditionally guaranteeing payment and/or performance of that phase of Work that is issued by a surety company among those listed as acceptable sureties on Federal bonds as set forth in Circular 570 of the U.S. Department of the Treasury;

b. One or more irrevocable letters of credit, payable to or at the direction of EPA, that is issued by one or more financial institution(s) (i) that has the authority to issue letters of credit and (ii) whose letter-of-credit operations are regulated and examined by a U.S. Federal or State agency;

c. A trust fund or funds established for the benefit of EPA that is administered by a trustee (i) that has the authority to act as a trustee and (ii) whose trust operations are regulated and examined by a U.S. Federal or State agency;

d. A policy or policies of insurance that (i) provides EPA with acceptable rights as a beneficiary thereof; and (ii) is issued by an insurance carrier (a) that has the authority to issue insurance policies in the applicable jurisdiction(s) and (b) whose insurance operations are regulated and examined by a State agency;

e. A demonstration by one or more Settling Defendants that such Settling Defendant meets the financial test criteria of 40 C.F.R. § 264.143(f) with respect to the estimated cost of that phase of Work being covered by the guarantee, provided that all other requirements of 40 C.F.R. § 264.143(f) are satisfied; or

f. A written guarantee to fund or perform the Work (or portion thereof) executed in favor of EPA by one or more of the following: (i) a direct or indirect parent company of a Settling Defendant, or (ii) a company that has a "substantial business relationship" (as defined in 40 C.F.R. § 264.141(h)) with at least one Settling Defendant; provided, however, that any company providing such a guarantee must demonstrate to the satisfaction of EPA that it satisfies the financial test requirements of 40 C.F.R. § 264.143(f) with respect to the estimated cost of the Work that it proposes to guarantee hereunder.

2.1. **[For initial guarantees under subsections 1. a, b, c, d, or f:]** Settling Defendants have selected, and EPA has approved, as an initial Performance Guarantee **[insert type(s)]** pursuant to Paragraph 1() of this Section, in the form attached hereto as Appendix G. Within ten days after entry of this Consent Decree, Settling Defendants shall execute or otherwise finalize all instruments or other documents required in order to make the selected Performance Guarantees legally binding in a form substantially identical to the documents attached hereto as Appendix G, and such Performance Guarantee shall thereupon be fully effective. Within thirty days of entry of

this Consent Decree, Settling Defendants shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected Performance Guarantee legally binding to EPA's Project Coordinator.

2.2. **[For initial guarantees under subsection 1.e.:]** Settling Defendants have selected, and EPA has approved, as an initial Performance Guarantee a demonstration of satisfaction of financial test criteria pursuant to Paragraph 1(e) of this Section with respect to [list corporations making the guarantee if less than all Settling Defendants].

3. If at any time during the effective period of this Consent Decree, Settling Defendants provide a Performance Guarantee for completion of a phase of the Work by means of a demonstration or guarantee pursuant to Paragraph 1(e) or 1(f) of this Section, such Settling Defendant shall also comply with the other relevant requirements of 40 C.F.R. § 264.143(f), 40 C.F.R. § 264.151(f), and 40 C.F.R. § 264.151(h)(1) relating to these methods unless otherwise provided in this Consent Decree, including but not limited to: (i) the initial submission of required financial reports and statements from the relevant entity's chief financial officer and independent certified public accountant; (ii) the annual re-submission of such reports and statements within 90 days after the close of each such entity's fiscal year; and (iii) the notification of EPA within 90 days after the close of any fiscal year in which such entity no longer satisfies the financial test requirements set forth at 40 C.F.R. § 264.143(f)(1). For purposes of the Performance Guarantee methods specified in this Section XIII, references in 40 C.F.R. Part 264, Subpart H, to "closure," "post-closure," and "plugging and abandonment" shall be deemed to refer to the Work required under this Consent Decree, and the terms "current closure cost estimate," "current post-closure cost estimate," and "current plugging and abandonment cost estimate" shall be deemed to refer to the estimated cost of the Work.

4. In the event that EPA determines at any time that a Performance Guarantee provided by Settling Defendants pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, or in the event that any Settling Defendant becomes aware of information indicating that a Performance Guarantee provided pursuant to this Section is inadequate or otherwise no longer satisfies the requirements set forth in this Section, whether due to an increase in the estimated cost of completing the Work or for any other reason, Settling Defendants, within 30 days of receipt of notice of EPA's determination or, as the case may be, within 30 days of any Settling Defendant becoming aware of such information, shall obtain and present to EPA for approval a proposal for a revised or alternative form of Performance Guarantee listed in Paragraph 1 of this Section that satisfies all requirements set forth in this Section XIII. In seeking approval for a revised or alternative form of Performance Guarantee, Settling Defendants shall follow the procedures set forth in Paragraph 6(b)(ii) of this Section. Settling Defendants' inability to post a Performance Guarantee for completion of the Work shall in no way excuse performance of any other requirements of this Consent Decree, including, without limitation, the obligation of Settling Defendants to complete the Work in strict accordance with the terms hereof.

5. The commencement of any Work Takeover pursuant to Section XXI (Covenants by Plaintiffs), Paragraph 7 of this Consent Decree shall trigger EPA's right to receive the benefit of any Performance Guarantee provided pursuant to Paragraph 1(a), (b), (c), (d), or (f) of this Section,

and at such time EPA shall have immediate access to resources guaranteed under any such Performance Guarantee, whether in cash or in kind, as needed to continue and complete the Work assumed by EPA under the Work Takeover provision. If for any reason EPA is unable to promptly secure the resources guaranteed under any such Performance Guarantee, whether in cash or in kind, necessary to continue and complete the Work assumed by EPA under the Work Takeover provision, or in the event that the Performance Guarantee involves a demonstration of satisfaction of the financial test criteria pursuant to Paragraph 1(e) of this Section, Settling Defendants shall, immediately upon written demand from EPA, deposit into an account specified by EPA, in immediately available funds and without setoff, counterclaim, or condition of any kind, a cash amount up to but not exceeding the estimated cost of the remaining Work to be performed as of such date, as determined by EPA.

6. Modification of Amount and/or Form of Performance Guarantee.

a. Reduction of Amount of Performance Guarantee. If Settling Defendants believe that the estimated cost to complete the remaining phase of Work covered by a Performance Guarantee has diminished below the amount(s) established pursuant to Paragraph 1 of this Section, Settling Defendants may, on any anniversary date of entry of this Consent Decree, or at any other time agreed to by the Parties, petition EPA in writing to request a reduction in the amount of the Performance Guarantee provided pursuant to this Section so that the amount of the Performance Guarantee is equal to the estimated cost of the remaining phase of Work to be performed. Settling Defendants shall submit a written proposal for such reduction to EPA that shall specify, at a minimum, the cost of the remaining Work to be performed and the basis upon which such cost was calculated. In seeking approval for a revised or alternative form of Performance Guarantee, Settling Defendants shall follow the procedures set forth in Paragraph 6(b)(ii) of this Section. If EPA decides to accept such a proposal, EPA shall notify the petitioning Settling Defendants of such decision in writing. After receiving EPA's written acceptance, Settling Defendants may reduce the amount of the Performance Guarantee in accordance with and to the extent permitted by such written acceptance. In the event of a dispute, Settling Defendants may reduce the amount of the Performance Guarantee required hereunder only in accordance with a final administrative or judicial decision resolving such dispute. No change to the form or terms of any Performance Guarantee provided under this Section, other than a reduction in amount, is authorized except as provided in Paragraphs 4 or 6(b) of this Section.

b. Change of Form of Performance Guarantee.

(i) If, after entry of this Consent Decree, Settling Defendants desire to change the form or terms of any Performance Guarantee provided pursuant to this Section, Settling Defendants may, on any anniversary date of entry of this Consent Decree, or at any other time agreed to by the Parties, petition EPA in writing to request a change in the form of the Performance Guarantee provided hereunder. The submission of such proposed revised or alternative form of Performance Guarantee shall be as provided in Paragraph 6(b)(ii) of this Section. Any decision made by EPA on a petition submitted under this subparagraph (b)(i) shall be made in EPA's sole and unreviewable discretion, and such decision shall not be subject to challenge by Settling Defendants pursuant to the dispute resolution provisions of this Consent Decree or in any other forum.

(ii) Settling Defendants shall submit a written proposal for a revised or alternative form of Performance Guarantee to EPA which shall specify, at a minimum, the estimated cost of the remaining Work to be performed, the basis upon which such cost was calculated, and the proposed revised form of Performance Guarantee, including all proposed instruments or other documents required in order to make the proposed Performance Guarantee legally binding. The proposed revised or alternative form of Performance Guarantee must satisfy all requirements set forth or incorporated by reference in this Section. Settling Defendants shall submit such proposed revised or alternative form of Performance Guarantee to EPA in accordance with Section XXVI (Notices and Submissions) of this Consent Decree. EPA shall notify Settling Defendants in writing of its decision to accept or reject a revised or alternative Performance Guarantee submitted pursuant to this subparagraph. Within 10 days after receiving a written decision approving the proposed revised or alternative Performance Guarantee, Settling Defendants shall execute and/or otherwise finalize all instruments or other documents required in order to make the selected Performance Guarantee legally binding in a form substantially identical to the documents submitted to EPA as part of the proposal, and such Performance Guarantee shall thereupon be fully effective. Settling Defendant shall submit all executed and/or otherwise finalized instruments or other documents required in order to make the selected Performance Guarantee legally binding to EPA within 30 days of receiving a written decision approving the proposed revised or alternative Performance Guarantee in accordance with Section XXVI (Notices and Submissions) of this Consent Decree.

c. Release of Performance Guarantee. If Settling Defendants receive written notice from EPA in accordance with Paragraph 2 of Section XIV (Certification of Completion) of this Consent Decree that a phase of Work has been fully and finally completed in accordance with the terms of this Consent Decree, or if EPA otherwise so notifies Settling Defendants in writing, Settling Defendants may thereafter release, cancel, or discontinue the Performance Guarantee for such phase of Work pursuant to this Section. Settling Defendants shall not release, cancel, or discontinue any Performance Guarantee provided pursuant to this Section except as provided in this subparagraph. In the event of a dispute, Settling Defendants may release, cancel, or discontinue the Performance Guarantee required hereunder for that phase of Work only in accordance with a final administrative or judicial decision resolving such dispute.

XIV. CERTIFICATION OF COMPLETION

1. Completion of the Remedial Actions

(a) Within 90 days after Settling Defendants conclude that the Remedial Action for OU2 and/or OU3 has been fully performed and the Performance Standards for each OU have been attained, Settling Defendants shall schedule and conduct a pre-certification inspection to be attended by Settling Defendants, EPA, and the State. If, after the pre-certification inspection, Settling Defendants still believe that the Remedial Action for the subject OU has been fully performed and the Performance Standards for such OU have been attained, they shall submit a written report requesting certification to EPA for approval, with a copy to the State, pursuant to Section XI (EPA Approval of Plans and Other Submissions) within 30 days of the inspection. In the report, a registered professional engineer and Settling Defendants' Project Coordinator for such OU shall state that the Remedial Action for such OU has been completed in full satisfaction of the

requirements of this Consent Decree. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or Settling Defendants' Project Coordinator:

To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If, after completion of the pre-certification inspection and receipt and review of the written report, EPA, after reasonable opportunity to review and comment by the State, determines that the Remedial Action or any portion thereof has not been completed for such OU in accordance with this Consent Decree or that the Performance Standards for such OU, have not been achieved, EPA will notify Settling Defendants in writing of the activities that must be undertaken by Settling Defendants pursuant to this Consent Decree to complete the Remedial Action and achieve the Performance Standards for such OU, provided, however, that EPA may only require Settling Defendants to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy selected in the ROD," as that term is defined in Section VI (Performance of the Work by Settling Defendants), Subsection A (RD/RA for OU2), Paragraph 5(b), or Section VI (Performance of the Work by Settling Defendants), Subsection C (RD/RA for OU3), Paragraph 4(b). EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require Settling Defendants to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established pursuant to this Paragraph, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution).

(b) If EPA concludes, based on the initial or any subsequent report requesting Certification of Completion and after a reasonable opportunity for review and comment by the State, that the Remedial Action for an OU has been performed in accordance with this Consent Decree and that the Performance Standards for that OU have been achieved, EPA will so certify in writing to Settling Defendants. This certification shall constitute the Certification of Completion of that phase of Work for purposes of this Consent Decree, including, but not limited to, Section XXI (Covenants by Plaintiffs). Certification of Completion of a phase of Work shall not affect Settling Defendants' obligations under this Consent Decree.

2. Completion of the Work.

(a) Within 90 days after Settling Defendants conclude that all phases of the Work (including O&M), have been fully performed, Settling Defendants shall schedule and conduct a pre-certification inspection to be attended by Settling Defendants, EPA, and the State. If, after the pre-certification inspection, Settling Defendants still believe that the Work has been fully performed, Settling Defendants shall submit a written report by a registered professional engineer stating that the Work has been completed in

full satisfaction of the requirements of this Consent Decree. The report shall contain the following statement, signed by a responsible corporate official of a Settling Defendant or Settling Defendants' Project Coordinator:

To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations:

If, after review of the written report, EPA, after reasonable opportunity to review and comment by the State, determines that any portion of the Work has not been completed in accordance with this Consent Decree, EPA will notify Settling Defendants in writing of the activities that must be undertaken by Settling Defendants pursuant to this Consent Decree to complete the Work, provided, however, that EPA may only require Settling Defendants to perform such activities pursuant to this Paragraph to the extent that such activities are consistent with the "scope of the remedy selected in the ROD," as that term is defined in Section VI (Performance of the Work by Settling Defendants), Subsection A (RD/RA for OU2), Paragraph 5(b), or Section VI (Performance of the Work by Settling Defendants), Subsection C (RD/RA for OU3), Paragraph 4(b). EPA will set forth in the notice a schedule for performance of such activities consistent with the Consent Decree and the SOW or require Settling Defendants to submit a schedule to EPA for approval pursuant to Section XI (EPA Approval of Plans and Other Submissions). Settling Defendants shall perform all activities described in the notice in accordance with the specifications and schedules established therein, subject to their right to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution).

(b) If EPA concludes, based on the initial or any subsequent request for Certification of Completion by Settling Defendants and after a reasonable opportunity for review and comment by the State, that the Work has been performed in accordance with this Consent Decree, EPA will so notify Settling Defendants in writing.

XV. EMERGENCY RESPONSE

1. In the event of any action or occurrence during the performance of the Work which causes or threatens a release of Waste Material from the Site that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Settling Defendants shall, subject to the following Paragraph, immediately take all appropriate action to prevent, abate, or minimize such release or threat of release, and shall immediately notify EPA's Project Coordinator, or, if the Project Coordinator is unavailable, EPA's Alternate Project Coordinator. If neither of these persons is available, Settling Defendants shall notify the EPA Region VII Spill Line at 913-289-0991. Settling Defendants shall take such actions in consultation with EPA's Project Coordinator or other available authorized EPA officer and in accordance with all applicable provisions of a Health and Safety Plan, Contingency Plans, and any other applicable plans or documents developed pursuant to this Consent Decree or accompanying SOWs. In the event that Settling Defendants fail to take appropriate

response action as required by this Section, and EPA or, as appropriate, the State takes such action instead, Settling Defendants shall reimburse EPA and the State all costs of the response action not inconsistent with the NCP pursuant to Section XVI (Payments for Response Costs).

2. Nothing in the preceding Paragraph or in this Consent Decree shall be deemed to limit any authority of the United States, or the State, (a) to take all appropriate action to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, or (b) to direct or order such action, or seek an order from the Court, to protect human health and the environment or to prevent, abate, respond to, or minimize an actual or threatened release of Waste Material on, at, or from the Site, subject to Section XXI (Covenants by Plaintiffs).

XVI. PAYMENTS FOR RESPONSE COSTS

1. Payments by Settling Federal Agencies for Response Costs - As soon as reasonably practicable after the effective date of this Consent Decree, and consistent with subparagraph 1(a)(ii) below, the United States, on behalf of the Settling Federal Agencies, shall:

(a). Pay to the EPA Hazardous Substance Superfund \$ _____, in reimbursement of Past Response Costs, and \$ _____ in reimbursement of Future Response Costs[, which payment includes [a] premium payment[s] for Future Response Costs].

(b). If the payment to the EPA Hazardous Substances Superfund required by this subparagraph is not made as soon as reasonably practicable, the appropriate EPA Region VII Superfund Branch Chief may raise any issues relating to payment to the appropriate DOJ Assistant Section Chief for the Environmental Defense Section. In any event, if this payment is not made within 120 days after the effective date of this Consent Decree, EPA and DOJ have agreed to resolve the issue within 30 days in accordance with a letter agreement dated _____, 1998.

2. In the event that payments required by Paragraph 1 of this Section are not made within 30 days of the effective date of this Consent Decree, Interest on the unpaid balance shall be paid at the rate established pursuant to section 107(a) of CERCLA, 42 U.S.C. § 9607(a), commencing on the effective date of this Consent Decree and accruing through the date of the payment.

3. The Parties to this Consent Decree recognize and acknowledge that the payment obligations of the Settling Federal Agencies under this Consent Decree can only be paid from appropriated funds legally available for such purpose. Nothing in this Consent Decree shall be interpreted or construed as a commitment or requirement that any Settling Federal Agency obligate or pay funds in contravention of the Anti-Deficiency Act, 31 U.S.C. § 1341, or any other applicable provision of law.

4. Payments by Settling Defendants for Past Response Costs.

(a). Within 30 days of the Effective Date, Settling Defendants shall pay to EPA \$56,297.03 in payment for Past Response Costs. Settling Defendants shall make all payments required by this subparagraph by wire transfer directed to the Federal Reserve Bank of New York using the following information:

Federal Reserve Bank of New York
ABA - 021030004
Account - 68010727
SWIFT address - FRNYUS33
33 Liberty Street
New York, N.Y. 10045
The Field Tag of the Fedwire message should read
D 68010717 Environmental Protection Agency

(b). At the time that payment is made, Settling Defendants shall send notice that payment has been made to the United States and EPA in accordance with Section XXVI (Notices and Submissions).

(c). The total amount to be paid by Settling Defendants and Settling Federal Agencies pursuant to the this Section shall be deposited in the Missouri Electric Works Superfund Site Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

5. Payments for Future Response Costs.

(a). Settling Defendants shall pay to EPA all Future Response Costs not inconsistent with the NCP. On a periodic basis the United States will send to Settling Defendants a bill requiring payment that includes a Regionally-prepared itemized cost summary, which includes direct and indirect costs incurred by EPA and its contractors, and costs incurred by DOJ and its contractors, if any. Settling Defendants shall make all payments within 30 days of Settling Defendants' receipt of each bill requiring payment, except as otherwise provided in Paragraph 6 below. Settling Defendants shall make all payments required by this Paragraph in the same manner as provided in Paragraph 4 of this Section.

(b). At the time of payment, Settling Defendants shall send notice that payment has been made to the United States and to EPA in accordance with Section XXVI (Notices and Submissions).

(c). The total amount to be paid by Settling Defendants pursuant to the preceding Paragraph shall be deposited in the Missouri Electric Works Superfund Site Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the Site, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

6. Settling Defendants may contest payment of any Future Response Costs under Paragraph 5 of this Section if they determine that the United States or the State has

made an accounting error or if they allege that a cost item that is included represents costs that are inconsistent with the NCP. Such objection shall be made in writing within 30 days of receipt of the bill and must be sent to the United States pursuant to Section XXVI (Notices and Submissions). Any such objection shall specifically identify the contested Future Response Costs and the basis for objection. In the event of an objection, Settling Defendants shall within the 30 day period pay all uncontested Future Response Costs to the United States in the manner described in the preceding Paragraph. Simultaneously, Settling Defendants shall establish an interest-bearing escrow account in a federally-insured bank duly chartered in the State of Missouri and remit to that escrow account funds equivalent to the amount of the contested Future Response Costs. Settling Defendants shall send to the United States, as provided in Section XXVI (Notices and Submissions), a copy of the transmittal letter and check paying the uncontested Future Response Costs, and a copy of the correspondence that establishes and funds the escrow account, including, but not limited to, information containing the identity of the bank and bank account under which the escrow account is established as well as a bank statement showing the initial balance of the escrow account. Simultaneously with establishment of the escrow account, Settling Defendants shall initiate the Dispute Resolution procedures in Section XIX (Dispute Resolution). If the United States prevails in the dispute, within 5 days of the resolution of the dispute, the Settling Defendants shall pay the sums due (with accrued interest) to the United States in the manner described in the preceding Paragraph. If Settling Defendants prevail concerning any aspect of the contested costs, Settling Defendants shall pay that portion of the costs (plus associated accrued interest) for which they did not prevail to the United States in the manner described in the preceding Paragraph; Settling Defendants shall be disbursed any balance of the escrow account. The dispute resolution procedures set forth in this Paragraph in conjunction with the procedures set forth in Section XIX (Dispute Resolution) shall be the exclusive mechanisms for resolving disputes regarding the Settling Defendants' obligation to reimburse the United States for its Future Response Costs.

7. In the event that the payments required by Subparagraph 4(a) of this Section, are not made within 30 days of the Effective Date or the payments required by Paragraph 5(a) of this Section are not made within 30 days of Settling Defendants' receipt of the bill, Settling Defendants shall pay Interest on the unpaid balance. The Interest on Future Response Costs shall begin to accrue on the date of the bill. The Interest shall accrue through the date of Settling Defendants' payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to Plaintiffs by virtue of Settling Defendants' failure to make timely payments under this Section including, but not limited to, payment of stipulated penalties pursuant to Section XX (Stipulated Penalties). Settling Defendants shall make all payments required by this Paragraph in the manner described in this Section.

XVII. INDEMNIFICATION AND INSURANCE

1. Settling Defendants' Indemnification of the United States and the State.

(a) Neither the United States nor the State assumes any liability by entering into this Consent Decree or by virtue of any designation of Settling Defendants as

EPA's authorized representatives under Section 104(e) of CERCLA. Settling Defendants shall indemnify, save and hold harmless the United States (with the exception of the Settling Federal Agencies), the State, and their officials, agents, employees, contractors, subcontractors, or representatives for or from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree, including, but not limited to, any claims arising from any designation of Settling Defendants as EPA's authorized representatives under Section 104(e) of CERCLA. Further, Settling Defendants agree to pay the United States (with the exception of the Settling Federal Agencies) and the State all costs they incur including, but not limited to, attorneys' fees and other expenses of litigation and settlement arising from, or on account of, claims made against the United States or the State based on negligent or other wrongful acts or omissions of Settling Defendants, their officers, directors, employees, agents, contractors, subcontractors, and any persons acting on their behalf or under their control, in carrying out activities pursuant to this Consent Decree. Neither the United States nor the State shall be held out as a party to any contract entered into by or on behalf of Settling Defendants in carrying out activities pursuant to this Consent Decree. Neither Settling Defendants nor any such contractor shall be considered an agent of the United States or the State.

(b) The United States and the State shall give Settling Defendants notice of any claim for which the United States or the State plans to seek indemnification pursuant to Subparagraph 1(a) of this Section, and shall consult with Settling Defendants prior to settling such claim.

2. Settling Defendants waive all claims against the United States and the State for damages or reimbursement or for set-off of any payments made or to be made to the United States or the State, arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays. In addition, Settling Defendants shall indemnify and hold harmless the United States and the State with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Settling Defendants and any person for performance of Work on or relating to the Site, including, but not limited to, claims on account of construction delays.

3. No later than 15 days before commencing any on-site Work, Settling Defendants shall secure, and shall maintain comprehensive general liability insurance with limits of three million dollars, combined single limit, and automobile liability insurance with limits of three million dollars, combined single limit, naming the United States and the State as additional insureds. In addition, for the duration of this Consent Decree, Settling Defendants shall satisfy, or shall ensure that their contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Settling Defendants in

furtherance of this Consent Decree. Prior to commencement of the Work under this Consent Decree, Settling Defendants shall provide to EPA and the State certificates of such insurance and a copy of each insurance policy. Settling Defendants shall resubmit such certificates and copies of policies each year on the anniversary of the Effective Date. If Settling Defendants demonstrate by evidence satisfactory to EPA and the State that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering the same risks but in a lesser amount, then, with respect to that contractor or subcontractor, Settling Defendants need provide only that portion of the insurance described above which is not maintained by the contractor or subcontractor.

XVIII. FORCE MAJEURE

1. "Force majeure," for purposes of this Consent Decree, is defined as any event arising from causes beyond the control of Settling Defendants, of any entity controlled by Settling Defendants, or of Settling Defendants' contractors, that delays or prevents the performance of any obligation under this Consent Decree despite Settling Defendants' best efforts to fulfill the obligation. The requirement that Settling Defendants exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any potential force majeure event (a) as it is occurring and (b) following the potential force majeure event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the Work or a failure to attain the Performance Standards.

2. If any event occurs or has occurred that may delay the performance of any obligation under this Consent Decree, whether or not caused by a force majeure event, Settling Defendants shall orally notify EPA's Project Coordinator or, in her absence, EPA's Alternate Project Coordinator or, in the event both of EPA's designated representatives are unavailable, the Director of EPA Region VII's Superfund Division, within 48 hours of when Settling Defendants first knew that the event might cause a delay. Within 48 hours thereafter, Settling Defendants shall provide in writing to EPA and the State an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Settling Defendants' rationale for attributing such delay to a force majeure event if they intend to assert such a claim; and a statement as to whether, in the opinion of Settling Defendants, such event may cause or contribute to an endangerment to public health, welfare or the environment. Settling Defendants shall include with any notice all available documentation supporting their claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude Settling Defendants from asserting any claim of force majeure for that event for the period of time of such failure to comply, and for any additional delay caused by such failure. Settling Defendants shall be deemed to know of any circumstance of which Settling Defendants, any entity controlled by Settling Defendants, or Settling Defendants' contractors knew or should have known.

3. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay or anticipated delay is attributable to a force majeure event, the time for performance of the obligations under this Consent Decree that are affected by the force majeure event will be extended by EPA, after a reasonable opportunity for review and comment by the State, for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the force majeure event shall not, of itself, extend the time for performance of any other obligation. If EPA, after a reasonable opportunity for review and comment by the State, does not agree that the delay or anticipated delay has been or will be caused by a force majeure event, EPA will notify Settling Defendants in writing of its decision. If EPA, after a reasonable opportunity for review and comment by the State, agrees that the delay is attributable to a force majeure event, EPA will notify Settling Defendants in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event.

4. If Settling Defendants elect to invoke the dispute resolution procedures set forth in Section XIX (Dispute Resolution), they shall do so no later than 15 days after receipt of EPA's notice. In any such proceeding, Settling Defendants shall have the burden of demonstrating by a preponderance of the evidence that the delay or anticipated delay has been or will be caused by a force majeure event, that the duration of the delay or the extension sought was or will be warranted under the circumstances, that best efforts were exercised to avoid and mitigate the effects of the delay, and that Settling Defendants complied with the requirements of Paragraphs 1 and 2 of this Section. If Settling Defendants carry this burden, the delay at issue shall be deemed not to be a violation by Settling Defendants of the affected obligation of this Consent Decree identified to EPA and the Court.

XIX. DISPUTE RESOLUTION

1. Unless otherwise expressly provided for in this Consent Decree, the dispute resolution procedures of this Section shall be the exclusive mechanism to resolve disputes arising under or with respect to this Consent Decree. However, the procedures set forth in this Section shall not apply to actions by the United States to enforce obligations of Settling Defendants that have not been disputed in accordance with this Section.

2. Any dispute which arises under or with respect to this Consent Decree shall in the first instance be the subject of informal negotiations between the parties to the dispute. The period for informal negotiations shall not exceed 20 days from the time the dispute arises, unless it is modified by written agreement of the parties to the dispute. The dispute shall be considered to have arisen when one party sends the other parties a written Notice of Dispute.

3. **Statements of Position.**

(a) In the event that the parties cannot resolve a dispute by informal negotiations under the preceding Paragraph, then the position advanced by EPA shall be considered binding unless, within 14 days after the conclusion of the informal negotiation period, Settling Defendants invoke the formal dispute resolution procedures of this Section

by serving on the United States and the State a written Statement of Position on the matter in dispute, including, but not limited to, any factual data, analysis or opinion supporting that position and any supporting documentation relied upon by Settling Defendants. The Statement of Position shall specify Settling Defendants' position as to whether formal dispute resolution should proceed under Paragraph 4 or 5 of this Section.

(b) Within 14 days after receipt of Settling Defendants' Statement of Position, EPA will serve on Settling Defendants its Statement of Position, including, but not limited to, any factual data, analysis, or opinion supporting that position and all supporting documentation relied upon by EPA. EPA's Statement of Position shall include a statement as to whether formal dispute resolution should proceed under Paragraph 4 or 5 of this Section. Within 14 days after receipt of EPA's Statement of Position, Settling Defendants may submit a Reply.

(c) If there is disagreement between EPA and Settling Defendants as to whether dispute resolution should proceed under Paragraph 4 or 5 of this Section, the parties to the dispute shall follow the procedures set forth in the Paragraph determined by EPA to be applicable. However, if Settling Defendants ultimately appeal to the Court to resolve the dispute, the Court shall determine which Paragraph is applicable in accordance with the standards of applicability set forth in Paragraph 4 or 5 of this Section.

4. Formal dispute resolution for disputes pertaining to the selection or adequacy of any response action and all other disputes that are accorded review on the administrative record under applicable principles of administrative law shall be conducted pursuant to the procedures set forth in this Paragraph. For purposes of this Paragraph, the adequacy of any response action includes, without limitation: the adequacy or appropriateness of plans, procedures to implement plans, or any other items requiring approval by EPA under this Consent Decree; and the adequacy of the performance of response actions taken pursuant to this Consent Decree. Nothing in this Consent Decree shall be construed to allow any dispute by Settling Defendants regarding the validity of the provisions of a Site ROD.

(a) An administrative record of the dispute shall be maintained by EPA and shall contain all statements of position, including supporting documentation, submitted pursuant to this Section. Where appropriate, EPA may allow submission of supplemental statements of position by the parties to the dispute.

(b) The Director of EPA Region VII's Superfund Division, will issue a final administrative decision resolving the dispute based on the administrative record described in the preceding subparagraph. This decision shall be binding upon Settling Defendants, subject only to the right to seek judicial review pursuant to Paragraph 4(c) and 4(d) of this Section.

(c) Any administrative decision made by EPA pursuant to Paragraph 4(b) of this Section shall be reviewable by this Court, provided that a motion for judicial review of the decision is filed by Settling Defendants with the Court and served on all Parties within 10 days of receipt of EPA's decision. The motion shall include a description

of the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Defendants' motion.

(d) In proceedings on any dispute governed by this Paragraph, Settling Defendants shall have the burden of demonstrating that the decision of the Director of EPA, Region VII's Superfund Division is arbitrary and capricious or otherwise not in accordance with the law. Judicial review of EPA's decision shall be on the administrative record compiled pursuant to Paragraph 4(a) of this Section.

5. Formal dispute resolution for disputes that neither pertain to the selection or adequacy of any response action nor are otherwise accorded review on the administrative record under applicable principles of administrative law, shall be governed by this Paragraph.

(a) Following receipt of Settling Defendants' Statement of Position submitted pursuant to Paragraph 3 of this Section, EPA's Superfund Division Director, or his/her delegatee, will issue a final decision resolving the dispute. The Superfund Division Director's decision shall be binding on Settling Defendants unless, within 10 days of receipt of the decision, Settling Defendants file with the Court and serve on the Parties a motion for judicial review of the decision setting forth the matter in dispute, the efforts made by the parties to resolve it, the relief requested, and the schedule, if any, within which the dispute must be resolved to ensure orderly implementation of this Consent Decree. The United States may file a response to Settling Defendants' motion.

(b) Notwithstanding Paragraph P of Section I (Background) of this Consent Decree, judicial review of any dispute governed by this Paragraph shall be governed by applicable principles of law.

6. The invocation of formal dispute resolution procedures under this Section shall not extend, postpone or affect in any way any obligation of Settling Defendants under this Consent Decree, not directly in dispute, unless EPA or the Court agrees otherwise. Stipulated penalties with respect to the disputed matter shall continue to accrue but payment shall be stayed pending resolution of the dispute as provided in Section XX (Stipulated Penalties), Paragraph 8. Notwithstanding the stay of payment, stipulated penalties shall accrue from the first day of noncompliance with any applicable provision of this Consent Decree. In the event that Settling Defendants do not prevail on the disputed issue, stipulated penalties shall be assessed and paid as provided in Section XX (Stipulated Penalties).

XX. STIPULATED PENALTIES

1. Settling Defendants shall be liable for stipulated penalties in the amounts set forth in Paragraphs 2 and 3 of this Section to the United States for failure to comply with the requirements of this Consent Decree specified below, unless excused under Section XVIII (Force Majeure). "Compliance" by Settling Defendants shall include

completion of the activities under this Consent Decree or any work plan or other plan approved under this Consent Decree identified below in accordance with all applicable requirements of law, this Consent Decree, a SOW, or any plans or other documents approved by EPA pursuant to this Consent Decree and within the specified time schedules established by and approved under this Consent Decree.

2. Stipulated Penalty Amounts

The following stipulated penalties shall accrue per violation per day for any noncompliance by Settling Defendants with any provision of this Consent Decree:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$1,000	1 st through 14 th day
\$2,000	15 th through 30 th day
\$4,000	31 st day through 60 th day
\$8,000	61 st day and beyond

3. In the event that EPA assumes performance of a portion or all of the Work pursuant to Paragraph 7 of Section XXI (Covenants by Plaintiffs), Settling Defendants shall be liable for a stipulated penalty in the amount of \$5,000,000.

4. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: (a) with respect to a deficient submission under Section XI (EPA Approval of Plans and Other Submissions), during the period, if any, beginning on the date of EPA's receipt of such submission until the date that EPA notifies Settling Defendants of any deficiency; (b) with respect to a decision by the Director of the Superfund Division, EPA Region VII, under Paragraph 4(b) or 5(a) of Section XIX (Dispute Resolution), during the period, if any, beginning on the 21st day after the date that Settling Defendants' reply to EPA's Statement of Position is received until the date that the Director issues a final decision regarding such dispute; or (c) with respect to judicial review by this Court of any dispute under Section XIX (Dispute Resolution), during the period, if any, beginning on the 31st day after the Court's receipt of the final submission regarding the dispute until the date that the Court issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Consent Decree.

5. Following EPA's determination that Settling Defendants have failed to comply with a requirement of this Consent Decree, EPA may give Settling Defendants written notification of the same and describe the noncompliance. EPA may send Settling Defendants a written demand for the payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Settling Defendants of a violation.

6. All penalties accruing under this Section shall be due and payable to the United States and the State within 30 days of Settling Defendants' receipt from EPA of a

demand for payment of the penalties, unless Settling Defendants invoke the Dispute Resolution procedures under Section XIX (Dispute Resolution). All payments to the United States under this Section shall be paid by electronic funds transfer to:

Federal Reserve Bank of New York
ABA = 021030004
Account = 69010727
Swift address = FRNYUS33
33 Liberty Street
New York, NY 10045

The Field Tag 4200 of the Fedwire message shall read "D 68010727 Environmental Protection Agency," shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID 076R, the DOJ Case Number 90-11-2-614/2, and the name and address of the party making payment.

7. The payment of penalties shall not alter in any way Settling Defendants' obligation to complete the performance of the Work required under this Consent Decree.

8. Penalties shall continue to accrue as provided in Paragraph 4 of this Section during any dispute resolution period, but need not be paid until the following:

(a) If the dispute is resolved by agreement or by a decision of EPA that is not appealed to this Court, accrued penalties determined to be owing shall be paid to EPA within 15 days of the agreement or the receipt of EPA's decision or order;

(b) If the dispute is appealed to this Court and the United States prevails in whole or in part, Settling Defendants shall pay all accrued penalties determined by the Court to be owed to EPA within 60 days of receipt of the Court's decision or order, except as provided in Subparagraph (c) below;

(c) If the District Court's decision is appealed by any Party, Settling Defendants shall pay all accrued penalties determined by the District Court to be owing to the United States into an interest-bearing escrow account within 60 days of receipt of the Court's decision or order. Penalties shall be paid into this account as they continue to accrue, at least every 60 days. Within 15 days of receipt of the final appellate court decision, the escrow agent shall pay the balance of the account to EPA and the State or to Settling Defendants to the extent that they prevail.

9. If Settling Defendants fail to pay stipulated penalties when due, the United States may institute proceedings to collect the penalties, as well as interest. Settling Defendants shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 6 of this Section.

10. Nothing in this Consent Decree shall be construed as prohibiting, altering, or in any way limiting the ability of the United States or the State to seek any other remedies or sanctions available by virtue of Settling Defendants' violation of this Consent Decree or of the statutes and regulations upon which it is based, including, but not limited

to, penalties pursuant to Section 122(l) of CERCLA, provided, however, that the United States shall not seek civil penalties pursuant to Section 122(l) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Consent Decree.

11. Notwithstanding any other provision of this Section, the United States may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Consent Decree.

XXI. COVENANTS BY PLAINTIFFS

1. In consideration of the payments that will be made by the Settling Federal Agencies under the terms of the Consent Decree, and except as specifically provided in Paragraphs 3, 4, and 6 of this Section, EPA covenants not to take administrative action against the Settling Federal Agencies pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607, relating to OU2 and OU3 at the Site. Except with respect to future liability, EPA's covenant shall take effect upon the receipt of the payments required by Paragraph 1 of Section XVI (Payments for Response Costs). With respect to future liability at each OU, EPA's covenant shall take effect upon Certification of Completion of Remedial Actions by EPA pursuant to Paragraph 1(b) of Section XIV (Certification of Completion) at that OU. EPA's covenant is conditioned upon the satisfactory performance by Settling Federal Agencies of their obligations under this Consent Decree. EPA's covenant extends only to the Settling Federal Agencies and does not extend to any other person.

2. In consideration of the actions that will be performed and the payments that will be made by Settling Defendants under the terms of the Consent Decree, and except as specifically provided in Paragraphs 3, 4, and 6 of this Section, the United States and the State covenant not to sue or to take administrative action against Settling Defendants pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607, and with respect to the State, applicable State law, relating to OU2 and OU3 at the Site. With respect to future liability at each OU, these covenants not to sue shall take effect upon Certification of Completion of Remedial Actions by EPA pursuant to Paragraph 1(b) of Section XIV (Certification of Completion) at that OU. These covenants not to sue are conditioned upon the satisfactory performance by Settling Defendants of their obligations under this Consent Decree. These covenants not to sue extend only to Settling Defendants and do not extend to any other person.

3. United States' Pre-certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States and the State reserve, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, and EPA reserves the right to issue an administrative order seeking to compel the Settling Federal Agencies to: (a) perform further response actions relating to the Site; or (b) reimburse the United States for additional costs of response if, prior to its receipt of a Certification of Completion of Remedial Action pursuant to Paragraph 1(b) of Section XIV (Certification of Completion): (i) conditions at the Site, previously unknown to EPA or the State, are

discovered; or (ii) information, previously unknown to EPA, is received, in whole or in part, and EPA determines that these previously unknown conditions or information together with any other relevant information indicates that the Remedial Action is not protective of human health or the environment.

4. United States' Post-certification Reservations. Notwithstanding any other provision of this Consent Decree, the United States and the State reserve, and this Consent Decree is without prejudice to, the right to institute proceedings in this action or in a new action, or to issue an administrative order seeking to compel Settling Defendants, and EPA reserves the right to issue an administrative order seeking to compel the Settling Federal Agencies to: (a) perform further response actions relating to the Site; or (b) reimburse the United States and the State for additional costs of response if, subsequent to Certification of Completion of the Remedial Action: (i) conditions at the Site, previously unknown to EPA or the State, are discovered; or (ii) information, previously unknown to EPA or the State, is received, in whole or in part, and EPA determines that these previously unknown conditions or this information together with other relevant information indicate that a Remedial Action is not protective of human health or the environment.

5. For purposes of Paragraph 3 of this Section, the information and the conditions known to EPA or the State shall include only that information and those conditions known to EPA or the State as of the date that the ROD for which such information and conditions apply was signed. For purposes of Paragraph 4 of this Section, the information and the conditions known to EPA or the State shall include only that information and those conditions known to EPA or the State as of the date of Certification of Completion of a Remedial Action for an operable unit and set forth in the ROD, the administrative record supporting the ROD, the post-ROD administrative record, or in any information received by EPA or the State pursuant to the requirements of this Consent Decree prior to Certification of Completion of an operable unit Remedial Action.

6. General reservations of rights. The covenants set forth above do not pertain to any matters other than those expressly specified in Paragraphs 1, 2, and 3 of this Section. The United States and the State reserves, and this Consent Decree is without prejudice to, all rights against Settling Defendants, and EPA and the federal natural resources trustees and the State reserve, and this Consent Decree is without prejudice to, all rights against the Settling Federal Agencies, with respect to all matters not expressly included within Plaintiff's covenant not to sue. Notwithstanding any other provision of this Consent Decree, the United States and the State reserve all rights against Settling Defendants with respect to:

- (a) claims based on a failure by Settling Defendants or the Settling Federal Agencies to meet a requirement of this Consent Decree;
- (b) liability arising from the past, present, or future disposal, release, or threat of release of Waste Material outside of the Site;
- (c) liability based upon Settling Defendants' ownership or operation of the Site, or upon Settling Defendants' transportation, treatment, storage, or disposal, or the

arrangement for the transportation, treatment, storage, or disposal of Waste Material at or in connection with the Site, other than as provided in a ROD, the Work, or otherwise ordered by EPA, after signature of this Consent Decree by Settling Defendants;

(d) liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;

(e) criminal liability;

(f) liability for violations of federal or state law which occur during or after implementation of an operable unit Remedial Action; and

(g) liability, prior to Certification of Completion of an operable unit Remedial Action, for additional response actions that EPA determines are necessary to achieve the Performance Standards for such operable unit, but that cannot be required pursuant to Paragraph 5 (Modification of the OU2 SOW or Related Work Plans) of Subsection A (RD/RA for OU2) for Section VI (Performance of the Work by Settling Defendants) or Paragraph 4 (Modification of the OU3 SOW or Related Work Plans) of Subsection C (RD/RA for OU3) for Section VI (Performance of the Work by Settling Defendants).

7. Work Takeover.

(a) In the event that EPA determines that Settling Defendants have (i) ceased implementation of any portion of the Work, or (ii) are seriously or repeatedly deficient or late in their performance of the Work, or (iii) are implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may issue a written notice ("Work Takeover Notice") to Settling Defendants. Any Work Takeover Notice issued by EPA will specify the grounds upon which such notice was issued and will provide Settling Defendants a period of 10 days within which to remedy the circumstances giving rise to EPA's issuance of such notice.

(b) If, after expiration of the 10-day notice period specified in the preceding subparagraph, Settling Defendants have not remedied to EPA's satisfaction the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice, EPA may at any time thereafter assume the performance of all or any portions of the Work as EPA deems necessary ("Work Takeover"). EPA will notify Settling Defendants in writing (which writing may be electronic) if EPA determines that implementation of a Work Takeover is warranted under this Paragraph.

(c) Settling Defendants may invoke the procedures set forth in Paragraph 4 of Section XIX (Dispute Resolution) to dispute EPA's implementation of a Work Takeover under the preceding subparagraph. However, notwithstanding Settling Defendants' invocation of such dispute resolution procedures, and during the pendency of any such dispute, EPA may in its sole discretion commence and continue a Work Takeover under the preceding subparagraph until the earlier of (i) the date that Settling Defendants remedy, to EPA's satisfaction, the circumstances giving rise to EPA's issuance of the relevant Work Takeover Notice or (ii) the date that a final decision is rendered in

accordance with Paragraph 4 of Section XIX (Dispute Resolution) requiring EPA to terminate such Work Takeover.

(d) After commencement and for the duration of any Work Takeover, EPA shall have immediate access to and benefit of any performance guarantee(s) provided pursuant to Section XIII of this Consent Decree, in accordance with the provisions of Paragraph 5 of that Section. If and to the extent that EPA is unable to secure the resources guaranteed under any such performance guarantee(s) and Settling Defendants fail to remit a cash amount up to but not exceeding the estimated cost of the remaining Work to be performed, all in accordance with the provisions of Paragraph 5 of Section XIII, any unreimbursed costs incurred by EPA in performing Work under the Work Takeover shall be considered Future Response Costs that Settling Defendants shall pay pursuant to Section XVI (Payment for Response Costs).

8. Notwithstanding any other provision of this Consent Decree, the United States and the State retain all authority and reserve all rights to take any and all response actions authorized by law.

XXII. COVENANTS BY SETTLING DEFENDANTS AND SETTLING FEDERAL AGENCIES

1. Covenant by Settling Defendants. Subject to the reservations in Paragraph 2 of this Section, Settling Defendants hereby covenant not to sue and agree not to assert any claims or causes of action against the United States or the State with respect to the Work, Past Response Costs, and Future Response Costs as defined herein or this Consent Decree, including, but not limited to:

(a) any direct or indirect claim for reimbursement from the Hazardous Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113 or any other provision of law;

(b) any claims against the United States, including any department, agency or instrumentality of the United States under CERCLA Sections 107 or 113 related to the Site, or

(c) any claims arising out of response actions at or in connection with the Site, including any claim under the United States Constitution, the Missouri Constitution, the Tucker Act, 28 U.S.C. § 1491, the Equal Access to Justice Act, 28 U.S.C. § 2412, as amended, or at common law.

Except as otherwise provided herein, these covenants not to sue shall not apply in the event that the United States or the State brings a cause of action or issues an order pursuant to the reservations set forth in Paragraphs 3, 4, and 6(b)-(d) or (g) of Section XXI (Covenants by Plaintiffs), but only to the extent that Settling Defendants' claims arise from the same response action, response costs, or damages that the United States or the State is seeking pursuant to the applicable reservation.

2. Covenant by Settling Federal Agencies. Settling Federal Agencies hereby agree not to assert any direct or indirect claim for reimbursement from the Hazardous

Substance Superfund (established pursuant to the Internal Revenue Code, 26 U.S.C. § 9507) through CERCLA Sections 106(b)(2), 107, 111, 112, 113 or any other provision of law with respect to the Site. This covenant does not preclude demand for reimbursement from the Superfund of costs incurred by a Settling Federal Agency in the performance of its duties (other than pursuant to this Consent Decree) as lead or support agency under the NCP.

3. Settling Defendants reserve, and this Consent Decree is without prejudice to: (a) claims against the United States, subject to the provisions of Chapter 171 of Title 28 of the United States Code, for money damages for injury or loss of property or personal injury or death caused by the negligent or wrongful act or omission of any employee of the United States while acting within the scope of his office or employment under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act or omission occurred. However, any such claim shall not include a claim for any damages caused, in whole or in part, by the act or omission of any person, including any contractor, who is not a federal employee as that term is defined in 28 U.S.C. § 2671; nor shall any such claim include a claim based on EPA's selection of response actions, or the oversight or approval of Settling Defendants' plans or activities. The foregoing applies only to claims which are brought pursuant to any statute other than CERCLA and for which the waiver of sovereign immunity is found in a statute other than CERCLA; and (b) contribution claims against the Settling Federal Agencies in the event any claim is asserted by the United States or the State against the Settling Defendants under the authority of or under Paragraphs 3, 4, 6(b)-(d) or (g) of Section XXII (Covenants by Plaintiffs), but only to the same extent and for the same matters, transactions, or occurrences as are raised in the claim of the United States or the State against Settling Defendants.

4. Nothing in this Consent Decree shall be deemed to constitute preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

XXIII. EFFECT OF SETTLEMENT; CONTRIBUTION PROTECTION

1. Nothing in this Consent Decree shall be construed to create any rights in, or grant any cause of action to, any person not a Party to this Consent Decree. The preceding sentence shall not be construed to waive or nullify any rights that any person not a signatory to this Consent Decree may have under applicable law. Except as otherwise expressly provided herein, each of the Parties expressly reserves any and all rights (including, but not limited to, any right to contribution), defenses, claims, demands, and causes of action which each Party may have with respect to any matter, transaction, or occurrence relating in any way to the Site against any person not a Party hereto.

2. The Parties agree, and by entering this Consent Decree this Court finds, that Settling Defendants and the Settling Federal Agencies are entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2), for matters addressed in this Consent Decree. The "matters addressed" in this Consent Decree are all response actions taken or to be taken and

all response costs incurred or to be incurred by the United States or any other person with respect with the Site. The "matters addressed" in this Consent Decree do not include those response costs or response actions as to which the United States has reserved its rights under this Consent Decree (except for claims for failure to comply with this Consent Decree), in the event that the United States asserts rights against Settling Defendants coming within the scope of such reservations.

3. Settling Defendants agree that with respect to any suit or claim for contribution brought by them for matters related to this Consent Decree they will notify the United States and the State in writing no later than 60 days prior to the initiation of such suit or claim.

4. Settling Defendants also agree that with respect to any suit or claim for contribution brought against them for matters related to this Consent Decree they will notify in writing the United States and the State within 10 days of service of the complaint on them. In addition, Settling Defendants shall notify the United States and the State within 10 days of service or receipt of any Motion for Summary Judgment and within 10 days of receipt of any order from a court setting a case for trial.

5. In any subsequent administrative or judicial proceeding initiated by the United States or the State for injunctive relief, recovery of response costs, or other appropriate relief relating to the Site, Settling Defendants shall not assert, and may not maintain, any defense or claim based upon the principles of waiver, res judicata, collateral estoppel, issue preclusion, claim-splitting, or other defenses based upon any contention that the claims raised by the United States or the State in the subsequent proceeding were or should have been brought in the instant case; provided, however, that nothing in this Paragraph affects the enforceability of the covenants not to sue set forth in Section XXI (Covenants by Plaintiffs).

XXIV. ACCESS TO INFORMATION

1. Settling Defendants shall provide to EPA and the State, upon request, copies of all documents and information within their possession or control or that of their contractors or agents relating to activities at the Site or to the implementation of this Consent Decree, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Settling Defendants shall also make available to EPA and the State, for purposes of investigation, information gathering, or testimony, their employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

2. Business Confidential and Privileged Documents.

(a) Settling Defendants may assert business confidentiality claims covering part or all of the documents or information submitted to Plaintiffs under this Consent Decree to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R.

Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA and the State, or if EPA has notified Settling Defendants that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Settling Defendants.

(b) Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendants assert such a privilege in lieu of providing documents, they shall provide the Plaintiffs with the following: (i) the title of the document, record, or information; (ii) the date of the document, record, or information; (iii) the name and title of the author of the document, record, or information; (iv) the name and title of each addressee and recipient; (v) a description of the contents of the document, record, or information; and (vi) the privilege asserted by Settling Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

3. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the Site.

XXV. RETENTION OF RECORDS

1. The United States acknowledges that each Settling Federal Agency: (a) is subject to all applicable Federal record retention laws, regulations, and policies; and (b) has certified that it has fully complied with any and all EPA requests for information pursuant to Section 104(e) and 122(e) of CERCLA, 42 U.S.C. 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. 6927.

2. Until 10 years after Settling Defendants' receipt of EPA's notification pursuant to Paragraph 2(b) of Section XIV (Certification of Completion), each Settling Defendant shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to its liability under CERCLA with respect to the Site, provided, however, that Settling Defendants who are potentially liable as owners or operators of the Site must retain, in addition, all documents and records that relate to the liability of any other person under CERCLA with respect to the Site. Each Settling Defendant must also retain, and instruct its contractors and agents to preserve, for the same period of time specified above all non-identical copies of the last draft or final version of any documents or records (including documents or records in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work, provided, however, that each Settling Defendant (and its contractors and agents) must retain, in addition, copies of all data generated during the performance of the Work and not contained in the aforementioned documents required to be retained. Each of the above record retention requirements shall apply regardless of any corporate retention policy to the contrary.

3. At the conclusion of this document retention period, Settling Defendants shall notify the United States and the State at least 90 days prior to the destruction of any such records or documents, and, upon request by the United States or the State, Settling Defendants shall deliver any such records or documents to EPA or the State. Settling Defendants may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Settling Defendants assert such a privilege, they shall provide the Plaintiffs with the following: (a) the title of the document, record, or information; (b) the date of the document, record, or information; (c) the name and title of the author of the document, record, or information; (d) the name and title of each addressee and recipient; (e) a description of the subject of the document, record, or information; and (f) the privilege asserted by Settling Defendants. However, no documents, reports or other information created or generated pursuant to the requirements of the Consent Decree shall be withheld on the grounds that they are privileged.

4. Each Settling Defendant hereby certifies individually that, to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the Site since notification of potential liability by the United States or the State or the filing of suit against it regarding the Site and that it has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XXVI. NOTICES AND SUBMISSIONS

1. Whenever, under the terms of this Consent Decree, written notice is required to be given or a report or other document is required to be sent by one Party to another, it shall be directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. All notices and submissions shall be considered effective upon receipt, unless otherwise provided. Written notice as specified herein shall constitute complete satisfaction of any written notice requirement of the Consent Decree with respect to the United States, EPA, the Settling Federal Agencies, the State, and Settling Defendants, respectively.

As to the United States:

Chief, Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611
Re: DJ # 90-11-2-614/2

and

Chief, Environmental Defense Section
Environment and Natural Resources Division

U.S. Department of Justice
P.O. Box 23986
Washington, D.C. 20026-3986
Re: DJ # _____

As to EPA:

EPA Project Coordinator
Pauletta R. France-Isetts
SUPR/SPEB
U.S. Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, Kansas 66101

As to the State:

[Name]
Missouri Department of Natural Resources
Air and Land Protection Division
Hazardous Waste Program, Superfund Section
P.O. Box 176
Jefferson City, Missouri 65102

As to Settling Defendants:

[Name]
Settling Defendants' Project Coordinator
[Address]

XXVII. EFFECTIVE DATE

1. The effective date of this Consent Decree shall be the date upon which this Consent Decree is entered by the Court, except as otherwise provided herein.

XXVIII. RETENTION OF JURISDICTION

1. This Court retains jurisdiction over both the subject matter of this Consent Decree and Settling Defendants for the duration of the performance of the terms and provisions of this Consent Decree for the purpose of enabling any of the Parties to apply to the Court at any time for such further order, direction, and relief as may be necessary or appropriate for the construction or modification of this Consent Decree, or to effectuate or enforce compliance with its terms, or to resolve disputes in accordance with Section XIX (Dispute Resolution) hereof.

XXIX. APPENDICES

1. The following appendices are attached to and incorporated into this Consent Decree:

Appendix A is the OU2 Record of Decision.

Appendix B is the List of Settling Defendants.

Appendix C is the Scope of Work for Remedial Design and Remedial Action for OU2.

Appendix D is the Scope of Work for Remedial Investigation and Feasibility Study for OU3.

Appendix E is the Scope of Work for Remedial Design and Remedial Action for OU3 [Reserved].

Appendix F is the draft Environmental Covenant.

Appendix G is the Performance Guarantee.

XXX. COMMUNITY RELATIONS

1. Settling Defendants shall propose to EPA and the State their participation in the community relations plan to be developed by EPA. EPA will determine the appropriate role for Settling Defendants under the Plan. Settling Defendants shall also cooperate with EPA and the State in providing information regarding the Work to the public. As requested by EPA or the State, Settling Defendants shall participate in the preparation of such information for dissemination to the public and in public meetings which may be held or sponsored by EPA or the State to explain activities at or relating to the Site.

XXXI. MODIFICATION

1. Schedules specified in this Consent Decree for completion of the Work may be modified by agreement of EPA and Settling Defendants. All such modifications shall be made in writing.

2. Except as provided in Paragraph 5 (Modification of the OU2 SOW or Related Work Plans) of Subsection A (RD/RA for OU2) of Section VI (Performance of the Work by Settling Defendants) or Paragraph 4 (Modification of the OU3 SOW or Related Work Plans) of Subsection C (RD/RA for OU3) of Section VI (Performance of the Work by Settling Defendants), no material modifications shall be made to the SOW without written notification to and written approval of the United States, Settling Defendants, and the Court, if such modifications fundamentally alter the basic features of a selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(B)(ii). Prior to providing its approval to any modification, the United States will provide the State with a reasonable opportunity to review and comment on the proposed modification. Modifications to a SOW that do not materially alter that document, or material modifications to a SOW that do not fundamentally alter the basic features of the selected remedy within the meaning of 40 C.F.R. § 300.435(c)(2)(B)(ii), may be made by written agreement between EPA, after providing the State with a reasonable opportunity to review and comment on the proposed modification, and Settling Defendants.

3. Nothing in this Decree shall be deemed to alter the Court's power to enforce, supervise or approve modifications to this Consent Decree.

XXXII. LODGING AND OPPORTUNITY FOR PUBLIC COMMENT

1. This Consent Decree shall be lodged with the Court for a period of not less than 30 days for public notice and comment in accordance with Section 122(d)(2) of CERCLA, 42 U.S.C. § 9622(d)(2), and 28 C.F.R. § 50.7. The United States reserves the right to withdraw or withhold its consent if the comments regarding the Consent Decree disclose facts or considerations which indicate that the Consent Decree is inappropriate, improper, or inadequate. Settling Defendants consent to the entry of this Consent Decree without further notice.

2. If for any reason the Court should decline to approve this Consent Decree in the form presented, this agreement is voidable at the sole discretion of any Party and the terms of the agreement may not be used as evidence in any litigation between the Parties.

XXXIII. SIGNATORIES/SERVICE

1. Each undersigned representative of a Settling Defendant to this Consent Decree and the Assistant Attorney General for the Environment and Natural Resources Division of the United States Department of Justice certifies that he or she is fully authorized to enter into the terms and conditions of this Consent Decree and to execute and legally bind such Party to this document.

2. Each Settling Defendant hereby agrees not to oppose entry of this Consent Decree by this Court or to challenge any provision of this Consent Decree unless the United States has notified Settling Defendants in writing that it no longer supports entry of the Consent Decree.

3. Each Settling Defendant shall identify, on the attached signature page, the name, address and telephone number of an agent who is authorized to accept service of process by mail on behalf of that Party with respect to all matters arising under or relating to this Consent Decree. Settling Defendants hereby agree to accept service in that manner and to waive the formal service requirements set forth in Rule 4 of the Federal Rules of Civil Procedure and any applicable local rules of this Court, including, but not limited to, service of a summons. The parties agree that Settling Defendants need not file an answer to the complaint in this action unless or until the court expressly declines to enter this Consent Decree.

XXXIV. FINAL JUDGMENT

1. This Consent Decree and its appendices constitute the final, complete, and exclusive agreement and understanding among the parties with respect to the settlement embodied in the Consent Decree. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Consent Decree.

2. Upon approval and entry of this Consent Decree by the Court, this Consent Decree shall constitute a final judgment between and among the United States and Settling Defendants. The Court finds that there is no just reason for delay and therefore enters this judgment as a final judgment under Fed. R. Civ. P. 54 and 58.

SO ORDERED THIS _____ DAY OF _____, 2009.

United States District Judge

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and State of Missouri v. Union Electric Company, et. al., relating to the Missouri Electric Works Superfund Site.

FOR THE UNITED STATES OF AMERICA

Date

[Name]
Assistant Attorney General
Environment and Natural Resources Division
U.S. Department of Justice
Washington, D.C. 20530

Date

Loren Remsberg
Environmental Enforcement Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 7611
Washington, D.C. 20044-7611

Date

[Name]
Environmental Defense Section
Environment and Natural Resources Division
U.S. Department of Justice
P.O. Box 23986
Washington, D.C. 20026-3986

Date

[Name]
Assistant United States Attorney
Eastern District of Missouri
U.S. Department of Justice
[Address]

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and State of Missouri v. Union Electric Company, et. al., relating to the Missouri Electric Works Superfund Site.

Date

Cecilia Tapia, Director
Superfund Division
U.S. Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, Kansas 66209

Date

David A. Hoefer
Attorney-Adviser
U.S. Environmental Protection Agency
Region VII
901 North 5th Street
Kansas City, Kansas 66209

THE UNDERSIGNED PARTY enters into this Consent Decree in the matter of United States of America and State of Missouri v. Union Electric Company, et. al., relating to the Missouri Electric Works Superfund Site.

FOR THE STATE OF MISSOURI

Date

[Name]
[Title]
[Address]

FOR _____ COMPANY, INC. *

Date

Signature: _____
Name (print): _____
Title: _____
Address: _____

Agent Authorized to Accept Service on Behalf of Above-signed Party:

Name (print): _____
Title: _____
Address: _____

Ph. Number: _____

* A separate signature page must be signed by each corporation, individual or other legal entity that is settling with the United States.

Appendix A

**Record of Decision for OU2 (Groundwater)
Missouri Electric Works Site
Cape Girardeau, Missouri**

076R
Site: Missouri Electric Works
ID # MB098096598
Break: 5.0
Other: 002
SRC 9.28.05

RECORD OF DECISION

**MISSOURI ELECTRIC WORKS SITE
CAPE GIRARDEAU, MISSOURI**

Prepared By:

U.S. Environmental Protection Agency

Region VII

Kansas City, Kansas

September 2005

MEW Admin Record
AR11011

LIST OF ACRONYMS AND ABBREVIATIONS

1,1,1-TCA	1,1,1-trichloroethane
1,1-DCA	1,1-dichloroethane
1,1-DCE	1,1-dichloroethene
1,2,4-TCB	1,2,4-trichlorobenzene
1,2-DCB	1,2-dichlorobenzene
1,2-DCE	1,2 dichloroethane
1,3-DCB	1,3-dichlorobenzene
1,4-DCB	1,4-dichlorobenzene
AL	Alluvium
AR	Administrative record
ARAR	Applicable or Relevant and Appropriate Requirements
ASL	Above sea level
bgs	Below ground surface
BH	Borehole
BHHRA	Baseline Human Health Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Chemical of concern
COPC	Chemicals of potential concern
CSF	Cancer slope factor
DOJ	Department of Justice
DRE	Destruction Removal Efficiency
EBD	Enhanced bio-degradation
EPA	Environmental Protection Agency
FB	Fractured bedrock
GFS	Fractured Bedrock and Alluvium Groundwater Feasibility Study
GRI	Groundwater Remedial Investigation
GTARC	Groundwater target concentrations
HI	Hazard Index
HW-A	Hypothetical well A
HW-B	Hypothetical well B
HW-C	Hypothetical well C
HW-D	Hypothetical well D
IC	Institutional control
ICLR	Incremental lifetime cancer risk
MCL	Maximum Concentration Level
MDL	Method detection limit
MDNR	Missouri Department of Natural Resources
MEW	Missouri Electric Works
MEWSC	Missouri Electric Works Steering Committee
MEWSTD	Missouri Electric Works Site Trust Donors
mg/kg-d	Milligram per kilogram of body weight per day
MNA	Monitored natural attenuation
MW	Monitoring well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan

LIST OF ACRONYMS AND ABBREVIATIONS

NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OU	Operable Unit
OU 1	Soils operable unit
PCB	Polychlorinated biphenyls
PIC	Product of incomplete combustion
POTW	Publicly Owned Treatment Works
ppb	Parts per billion
ppm	Parts per million
PRG	Preliminary remediation goal
RA	Remedial Action
RAO	Remedial action objective
RfD	Reference dose
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RL	Reporting limits
ROD	Record of Decision
Source Area 1	Area surrounding monitoring wells MW-3, MW-5, MW-11 and MW-11A
Source Area 2	Former transformer storage and debris disposal areas
SVOC	Semi-volatile Organic Compound
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TCE	Trichloroethene
TCL	Target cleanup levels
TEQ	TCDD equivalents
TI	Technical Impracticability
Ti	Technical Impracticability
TSCA	Toxic Substances Control Act
USGS	United States Geological Survey
VOC	Volatile Organic Compound
WES	Williams Environmental Services
WQS	Water Quality Standards

MEW Admin Record
AR111013

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PART I THE DECLARATION

1.1 Site Name and Location

Missouri Electric Works Site
MOD980965982
Operable Unit 2 (OU 2): Groundwater
Cape Girardeau, Missouri

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the selected remedies for the Missouri Electric Works (MEW) Superfund Site, OU 2, located in Cape Girardeau, Missouri. The remedial alternatives for the Site were presented in a Proposed Plan which was issued by the Environmental Protection Agency (EPA) in August 2005. The selected remedies were chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and are based on the Administrative Record file for the Site.

The state of Missouri, acting through the Missouri Department of Natural Resources (MDNR), concurs with the selected remedies.

1.3 Assessment of Site

The selected remedies presented in this ROD are necessary to protect public health and the environment from actual or threatened releases of hazardous substances into the environment.

1.4 Description of Selected Remedies

The remedial actions for OU 2 address contaminated groundwater in the fractured bedrock and in the alluvium. Contaminants detected in the fractured bedrock include: 1,1,1-trichloroethane (1,1,1-TCA), trichloroethene (TCE), tetrachloroethene (PCE), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethene (1,2-DCE), benzene, chlorobenzene, 1,2,4-trichlorobenzene (1,2,4-TCB), 1,2-dichlorobenzene (1,2-DCB), 1,3-dichlorobenzene (1,3-DCB), 1,4-dichlorobenzene (1,4-DCB), and polychlorinated biphenyls (PCBs) (water samples not filtered). Contaminants detected in the alluvium include: TCE, 1,4-dichloroethane (1,4-DCA), 1,1-DCE, 1,2-DCE, and 1,4-DCB. The remedial actions selected to address these two areas of contamination are summarized below.

Fractured Bedrock Groundwater - The remedial action selected to address contamination in the fractured bedrock groundwater (this action was designated in the Proposed Plan as Alternative FB-2), consists of the following four (4) components: technical impracticability (TI) waiver for attainment of chemical-specific applicable or relevant and appropriate requirements (ARARs), institutional controls (ICs), wellhead treatment, and long-term groundwater monitoring. The chemical-specific ARARs which are being waived by the TI waiver are identified in Section 9.1.2 of the Decision Summary. The ICs will be implemented to reduce the

potential for exposure to the contaminated groundwater. The primary IC is expected to be proprietary in nature, i.e., a restrictive covenant and grant of access. Other ICs that might be used include the designation of the area of groundwater contamination as a "special use" area by MDNR's Division of Environmental Quality, the use of ordinances, inspection regimes, property notices, and/or public information. The ICs are discussed in Section 9.1.2, pages 30 and 31 of the Decision Summary.

Wellhead treatment systems, such as activated carbon or air strippers, that remove chemicals of concern (COCs) from the drinking water supply will be used. These systems could be installed and maintained for any existing potable (drinking) water supply well in the event that it becomes impacted by COCs. New water supply wells installed in areas where extracted groundwater could reasonably be expected to have COCs could also have wellhead treatment systems installed.

Monitoring of groundwater will be performed. This will be accomplished by obtaining groundwater samples from bedrock wells and performing laboratory analysis on the samples for COCs. Laboratory analysis for the duration of the monitoring is expected to include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and PCBs. Annual maintenance and repair of the monitoring wells will be required. Provision will be made for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the remedial action objectives (RAOs) were met or a determination was made that monitoring was no longer necessary.

This remedial action provides for the overall protection of human health and the environment, a "threshold" criterion for remedy selection, as set forth in section 300.430(f) of the NCP, however, it does not meet the second NCP threshold criterion of compliance with ARARs. Due to the highly complex and variable bedrock conditions found at the Site, compliance with all ARARs through containment, collection, treatment, or other technologies will be extremely uncertain and costly. As a result, a waiver of certain chemical-specific ARARs will be provided as compliance with such requirements is technically impracticable from an engineering perspective. The estimated net present value cost for implementing the FB-2 remedy is \$2,248,453.

Alluvial Groundwater - The remedial action selected to address contamination in the alluvial groundwater (this action was designated in the Proposed Plan as Alternative AL-4) consists of the following four (4) components: ICs, wellhead treatment, long-term groundwater monitoring, and the injection of enhanced biodegradation (EBD) agents into the alluvial groundwater.

The EPA anticipates that the ICs will be implemented to reduce the potential for exposure to the contaminated alluvial groundwater. The primary IC is expected to be proprietary in nature, i.e., a restrictive covenant and grant of access. Other ICs that might be used include the designation of the area of groundwater contamination as a "special use" area by MDNR's Division of Environmental Quality, the use of ordinances, inspection regimes, property notices, and/or public information. The ICs are discussed in greater detail below.

Wellhead treatment systems, such as activated carbon or air strippers, to remove COCs from groundwater to be used for a drinking water supply will be provided. The systems could be installed and maintained for any existing potable (drinking) water supply well in the event that it becomes impacted by COCs. New water supply wells installed in areas where extracted groundwater could reasonably be expected to have COCs could also have wellhead treatment systems installed. Monitoring of groundwater will be performed. This will be accomplished by obtaining groundwater samples from existing and new alluvial wells. The groundwater samples will be analyzed in the laboratory for COCs. Annual maintenance and repair of the monitoring wells will be necessary. Provision will be made for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the RAOs were met or a determination was made that monitoring was no longer necessary.

Agents to accelerate natural biological processes that degrade or breakdown COCs will be injected into the alluvial groundwater. Installation of injection wells will be required. Periodic handling of the EBD agent will also be required.

Remedial action AL-4 meets both threshold criteria: it provides for the overall protection of human health and the environment, and complies with ARARs. This remedial action also provides for long-term effectiveness in the alluvial groundwater. The toxicity, mobility, and volume of the COCs in the alluvium will be reduced by the application of this action. Minimal short-term risks associated with injection well installation and EBD injection are possible. Implementation of this remedial action should present no problems. The estimated net present value cost for implementing the AL-4 remedy is \$4,815,568.

Contingent Remedy - The EPA expects that through additional groundwater sampling conducted prior to the implementation of a remedial action for the contaminated alluvial groundwater, it can be demonstrated that conditions exist that support the use of Monitored Natural Attenuation (MNA) to achieve RAOs for this groundwater unit. If and when that demonstration has been made to EPA and the state's satisfaction, the remedy for this groundwater unit will become that described as AL-5 in the Proposed Plan. There is very little difference between the AL-4 and AL-5 remedies. Both rely on degradation of the COCs in the alluvial groundwater to achieve RAOs. The primary difference between AL-4 and AL-5 is that AL-4 requires the injection of an agent into the groundwater to accomplish the degradation of COCs while AL-5 does not. The achievement of RAOs for AL-5 relies on naturally occurring processes and chemicals found in the alluvial groundwater.

Quarterly groundwater monitoring of the alluvial aquifer is currently being conducted. During June 2005, the analyses performed on alluvial groundwater samples were expanded to include parameters that are used to determine whether or not degradation of chemicals is naturally occurring. It is anticipated that these parameters will continue to be evaluated for at least one year. Evaluation of the data will be performed to determine whether or not the alluvial groundwater can support natural attenuation. If that determination is made, injection of compounds into the groundwater will not be required to attain RAOs. The estimated net present value cost for implementing the AL-5 remedy is \$3,905,536.

MEW Admin Record
AR11018

1.5 Statutory Determination

The selected remedies are consistent with CERCLA, and to the extent practicable, the NCP. The selected remedies are protective of human health and the environment, comply with federal and state requirements that are applicable or relevant and appropriate (except as waived), and are cost effective. The fractured bedrock remedy does not meet the regulatory preference for treatment since it is technically impracticable from an engineering perspective to treat groundwater in the bedrock. A TI waiver for the fractured bedrock groundwater is part of the ROD for OU 2. The specifics of the TI waiver are discussed in Sections 9.1.2 of the Decision Summary. The alluvium groundwater remedy does meet the regulatory preference for treatment; however, the contaminant source impacting the alluvium is the bedrock groundwater.

Because these remedies will result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unrestricted use and unrestricted exposure, a statutory review will be conducted within five years after the initiation of the remedial action or by September 24, 2009, (five years after the initial five-year review) to ensure that the remedies are, or will be, protective of human health and the environment.

1.6 ROD Data Certification Checklist

The following information is in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record file for this Site.

- COCs and their respective concentrations - Page 24
- Baseline risk represented by the COCs - Pages 21-22
- Cleanup levels established for COCs and the bases for these levels - Pages 26-27
- How source materials constituting principal threats are addressed - Page 44
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD - Page 16
- Estimated capital, annual operation and maintenance (O&M), total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected - Pages 40 & 43

1.7 Authorizing Signature


Cecilia Tapia, Director
Superfund Division

9/28/05
Date

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PART II THE DECISION SUMMARY

1.0 Site Name, Location and Description

Cape Girardeau, Missouri, is a community of about 37,000 permanent residents located in southeastern Missouri along the Mississippi River. It is a regional hub for education, commerce, and medical care. Southeast Missouri State University is located in Cape Girardeau. It is estimated that approximately 50,000 additional people visit Cape Girardeau daily to work, go to school, get medical care, or shop. (The Site location is generally depicted in Figure 1 and more specifically depicted in Figure 2.)

The Site is comprised of approximately 6.4 acres located at 824 South Kingshighway (Highway 61) in Cape Girardeau, Missouri. The Site includes the former Missouri Electric Works (MEW) Site proper, as well as all areas which have become contaminated with: 1,1,1-TCA; TCE; PCE; 1,1-DCA; 1,1-DCE; 1,2-DCE; benzene; chlorobenzene; 1,2,4-TCB; 1,2-DCB; 1,3-DCB; 1,4-DCB; and PCBs from the operations of MEW. The area impacted by contamination from the Site is shown in Figure 3. The Site is comprised, for the purposes of this ROD, into the Missouri Electric Works, Inc. (MEW, Inc.) property located along Kingshighway (the upland area) and the downgradient wetland area where contamination from the MEW, Inc. property has come to be located. These areas are depicted in Figure 4. The Site is located in a predominately commercial/industrial area of Cape Girardeau. The area surrounding the Site has experienced significant development since the early 1990s when the Site was listed on the National Priorities List (NPL).

The Site is located approximately 1.6 miles west of the Mississippi River. It is located in the hills adjacent to the west valley wall of the Mississippi River floodplain. Runoff leaves the Site through intermittent channels exiting from the north, south, and east boundaries (as shown in Figure 5) and eventually drains into the Cape La Croix Creek which is located 0.7 miles east of the Site. The Cape La Croix Creek flows 1.1 miles to the southeast and then enters the Mississippi River. The Site is bounded on the north by retail and warehouse properties, on the south by commercial storage, and on the east by a warehouse. A wetland is located approximately 700 feet south of the Site. The wetland area is underlain by alluvial deposits. The approximate location of the wetland with respect to the Site is indicated in Figure 6.

2.0 Site History and Enforcement Activities

2.1 Site History

MEW, Inc. acquired the Site in 1952. Prior to that, it is believed that the land was used for agricultural purposes. MEW, Inc. operated an electrical repair, service, and resale business at the Site from 1954 until 1992. No commercial activities have been conducted at the Site since 1992. MEW, Inc. continues to own the Site property located at 824 South Kingshighway.

The current land use for the surrounding area is predominately commercial. There are recreational soccer fields east of the Site. Significant new business construction has occurred

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near the Site. Land use in the area is not expected to change significantly. Cleanup requirements established by EPA took into consideration the theoretical possibility of residential use.

2.2 Contamination History

The MEW, Inc. serviced, repaired, reconditioned, and salvaged electrical equipment while it operated at the Site. Electrical equipment handled during this time consisted of oil-filled electrical transformers, electric motors, electric equipment controls, and oil-filled switches.

PCBs were first manufactured in the 1920s. Due to the fire-retardant properties of PCBs, they were often added to the dielectric fluid in electrical equipment to minimize the potential for fires. The Toxic Substances Control Act (TSCA) of 1978 banned the manufacture of PCBs and required that electrical equipment containing more than 500 parts per million (ppm) PCBs be removed from service. This requirement resulted from studies which indicated that PCBs are a probable human carcinogen, are extremely stable in the environment (they do not readily degrade), and bio-accumulate in the food chain. PCBs can be destroyed by subjecting them to high temperatures such as those generated in an incinerator. However, if the temperatures are not hot enough or if heat is applied for an insufficient amount of time, products of incomplete combustion (PICs) can be formed. The PICs for PCBs are dioxins and furans.

During its operational history, MEW, Inc. reportedly recycled materials from old transformers, selling copper wire, and reusing dielectric fluids. The salvaged transformer oil was generally filtered through Fuller's Earth for reuse. An estimated 90 percent of the transformer oil was recycled in this manner. According to business records obtained from MEW, Inc., more than 16,000 transformers were repaired or scrapped at the Site during its time of operation. The total amount of transformer oil that was not recycled was estimated to be approximately 28,000 gallons. Information gathered during interviews of former employees indicates that the majority of the non-recycled oil was disposed of on Site soils. In 1984, approximately 5,000 gallons of waste oil was removed by a contractor after a TSCA inspection by the MDNR.

Industrial solvents were used to clean the electrical equipment being repaired or serviced by MEW, Inc. Solvents were reused until they were no longer effective. Spills and the disposal of spent solvents onto Site soils were described by former employees during EPA-conducted interviews.

Site soils and adjacent properties were found to be contaminated with PCBs. Groundwater contamination was also detected. Contaminants included: 1,1,1-TCA; TCE; PCE; 1,1-DCA; 1,1-DCE; 1,2-DCE; benzene; chlorobenzene; 1,2,4-TCB; 1,2-DCB; 1,3-DCB; 1,4-DCB; and PCBs.

2.3 Investigation History

Site contamination was first discovered in 1984 during a MDNR-conducted TSCA inspection. During this inspection, PCB-contaminated soils and inappropriate storage of over 100 55-gallon drums of PCB-contaminated oil were discovered. From 1985 through 1988, EPA conducted additional investigations to characterize the extent of Site contamination. These investigations

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indicated that PCB contamination in the surface soils was extensive (with PCB concentrations up to 58,000 ppm), that shallow subsurface soils at the Site were contaminated to a lesser extent, that offsite migration of PCB-contaminated soils had occurred along drainage paths, that measurable levels of PCBs were present on the Site buildings and on nearby offsite building walls, and that measurable concentrations of airborne PCBs were present.

The MEW Steering Committee (MEWSC), a group of former customers of MEW, Inc. identified by EPA as potentially responsible parties (PRPs), conducted a Remedial Investigation (RI) pursuant to an Administrative Order on Consent (Docket Number 7-89F-0002). This RI focused on soil and sediment contamination with minimal investigation of potential groundwater contamination. This RI was conducted between 1989 and 1990. The findings of this investigation are summarized as follows:

- PCBs adsorbed onto the near-surface soils had migrated to surrounding properties primarily via storm water runoff. The PCB concentrations decreased along the drainage features with greater distance from the Site.
- PCB contamination of soils with concentrations greater than 10 ppm was estimated to be 6.8 acres.
- PCB contamination was found at depth in the transformer storage and debris burial areas. The relative locations of these areas are indicated in Figure 7.
- VOC contamination was detected in soils at depths of 2.5 feet south and east of the MEW building, within the transformer storage area, and the debris burial area.
- PCBs were detected in Monitoring Wells #3 and #5. However, these detections were judged to be artifacts of well installation.
- VOCs, particularly 1,1-DCA, trans-1,2-DCE, chlorobenzene, and TCE were detected in the monitoring wells.

A ROD was issued by EPA in September 1990 which selected remedial actions to address contamination detected at the Site. The ROD identified onsite incineration of all soils having PCB contamination at levels greater than 10 ppm and the extraction and treatment of groundwater contaminated with chlorobenzene at concentrations greater than 20 parts per billion (ppb). For the purposes of the soils response, the ROD defined the Site as all areas that had become contaminated with PCBs originating from activities conducted by MEW, Inc. The ROD provided that all soils contaminated with PCBs at concentrations greater than 10 ppm to a depth of four feet and 100 ppm below four feet were to be excavated and incinerated. The ROD estimated that 20,000 to 30,000 tons of PCB-contaminated soils would require incineration.

After receipt of Special Notice Letters from EPA which informed them of their potential liability and invited them to negotiate a Consent Decree for Site cleanup with EPA, in January 1991 the MEWSC requested that they be allowed to further investigate groundwater contamination. The request was made because of the MEWSC's belief that a confining layer existed beneath the Site which would inhibit downward migration of chlorobenzene. Permission to conduct this post-ROD investigation was granted by EPA. During this investigation, which involved the drilling of groundwater monitoring wells, solution cavities within the bedrock were encountered at depths of 110 feet, 215 feet, and 320 feet below ground surface (bgs). The subsurface information obtained during the drilling and installation of MW-11A is presented as Figure 8.

These solution features were mud-filled. The mud was contaminated with PCBs. PCB contamination was also detected in the groundwater. The well-hole for MW-11A was advanced to a depth of 405 feet; analysis of groundwater from this depth indicated PCB contamination at a concentration of 2 ppb. Two separate OUs, one for soil and one for groundwater, were designated after receipt of the 1991 groundwater information. As a result of this new information, work to remediate groundwater at the Site was postponed until a focused groundwater investigation could be completed.

In accordance with the terms of the Consent Decree filed with the U.S. District Court, Eastern District of Missouri, Southeastern Division under Civil Action Nos. 1:92CV00078GFG and 1:92CV00088GFG (federal and state actions joined), groundwater investigation activities began after soil remediation activities were complete. Although the Consent Decree was lodged in the Federal District Court in June 1992, it was not finally approved by the Court until March 1998 and did not become effective until that date. The groundwater investigation required by the Consent Decree began during 2000 and was completed during the summer of 2005. The groundwater monitoring system at the Site in 2000 is identified in Figure 9. The work was performed by KOMEX H2O on behalf of the settling defendants to the Consent Decree, who performed the work as the MEW Site Trust Donors (MEWSTD).

The groundwater investigation included the following:

- Field reconnaissance and field mapping of bedrock
- Fractured rock lineament study
- Installation of a tipping bucket rain gauge with a built-in data logger at the location of MW-6A
- Quarterly download and analyses of precipitation measurements
- Quarterly groundwater monitoring and sampling
- Quarterly download and analyses of water level measurements
- Sediment sampling from groundwater wells
- Laboratory analyses of groundwater and sediment samples
- Installation of groundwater data loggers in groundwater monitoring wells MW-3, MW-11, MW-11A, MW-16A, and MW-16C
- Bedrock fracture modeling
- Geophysical electrical resistivity tomography, seismic reflection, and refraction assessment of the southeastern portion of the Site in the vicinity of wells MW-3, MW-5, MW-11, and MW-11A
- Geoprobe investigation to assess and refine geophysical interpretation
- Installation of sixteen (16) new groundwater monitoring wells
- Installation of twenty-three (23) boreholes to assist in the location of the new monitoring wells
- Sampling and analyses of drill cuttings
- Installation of one piezometer (MW-E1) in the drainage-way southeast of the upland area
- Installation of two surface water level stilling wells in the Wetland Creek and Retention Pond

- Development of conceptual models of groundwater flow (fractured bedrock and alluvial)
- Submission of quarterly groundwater monitoring reports, including summaries of investigation activities during the quarter

Quarterly groundwater monitoring is ongoing. The investigation indicates that the groundwater within the fractured bedrock is contaminated with: 1,1,1-TCA; TCE; PCE; 1,1-DCA; 1,1-DCE; 1,2-DCE; benzene; chlorobenzene; 1,2,4-TCB; 1,2-DCB; 1,3-DCB; 1,4-DCB; and non-filtered PCBs. Sediment particles moving within the bedrock fractures may have PCBs attached. TCE has been detected above the maximum contaminant level¹ (MCL) in the groundwater in the wetland area.

2.4 Enforcement History

At the time that EPA's Superfund Division became involved with the Site in 1986, MEW, Inc. was still operating at the Site. The business owner was using portions of the Site to grow fruit and vegetables. The EPA issued an Administrative Order requiring the owner/operator of the Site to stop handling oil-filled electrical equipment with PCB concentrations greater than 2 ppm at the Site, to place erosion barriers in all drainage features to minimize the amount of PCB contamination migrating offsite via storm water runoff, and to stop selling and giving away vegetables grown on the Site.

Pursuant to the authority of section 104(e) of CERCLA, EPA requested from MEW, Inc. copies of its business records. These records were provided to EPA. As a result, approximately 700 former customers of MEW, Inc. were contacted by EPA and notified of their potential liability. A group of 70 former customers formed the MEWSC during 1987. As discussed above, the MEWSC conducted the initial RI/feasibility study (FS) at the Site.

The Site was proposed for inclusion on the NPL² of Superfund sites during 1989. The Site was included on the NPL during February 1990. Notification of the listing of the MEW site was published in the Federal Register on February 21, 1990, 55 Fed. Reg. 6154.

In December 1990, Special Notice Letters were issued by EPA to 323 former customers of MEW, Inc. who had sent oil-filled electrical equipment to the Site. A group of 175 former customers entered into Consent Decree negotiations with the United States and the state which required implementation of the work described in the 1990 ROD. The Consent Decree was signed by the 175 former customers of MEW, Inc., MDNR, and by the United States. The Consent Decree was lodged with the United States District Court in June 1992. The Consent Decree was initially approved and entered by the Court in August 1994. Subsequent to that approval, however, a group of former customers of MEW, Inc. appealed the entry of the Consent Decree to the U.S. Eighth Circuit Court of Appeals. In August 1995, the Eighth Circuit remanded (sent back) the Consent Decree to the District Court for further consideration. The

¹ MCL is defined in the Safe Drinking Water Act, 42 U.S.C. § 300f, as the maximum permissible level of a contaminant in water which is delivered to any users of a public water system.

² The NPL is a list compiled by EPA pursuant to section 105 of CERCLA, of uncontrolled hazardous substance releases in the United States that are priorities for long-term remedial evaluation and response.

Consent Decree was approved and entered a second time by the District Court in August 1996. This approval and entry was also appealed. In December 1997, the Eighth Circuit reaffirmed (agreed with) the District Court's approval of the Consent Decree, and the Consent Decree became effective in March 1998.

The Settling Defendants to the Consent Decree submitted a focused FS which presented alternatives for soil remediation to EPA in the fall of 1994. At that time, the Settling Defendants requested that EPA consider including thermal desorption as an approved soil treatment technology. The EPA agreed and in February 1995 issued an Explanation of Significant Differences (ESD) to the ROD which included thermal desorption as an acceptable remedial technology for use in remediating Site soils. The public was given an opportunity to review and comment on the ESD.

2.5 Cleanup History

The remedial action for the soils (OU 1) began with Site preparation activities during 1999. A pre-construction meeting was held on June 24, 1999. Williams Environmental Services (WES) was selected by the Settling Defendants as the soil remedial action contractor. WES used a two-phase thermal desorption unit (unit) to treat the PCB-contaminated soils. As required in the Consent Decree, a performance test of the unit was conducted on October 19, 1999. The purpose of the performance test was to ensure that the unit could destroy the PCBs without the formation of PICs. The PICs that may be created during the thermal treatment of PCBs include dioxins and furans. Soils treated during the performance test were analyzed for PCBs, dioxins, furans, chromium, and lead. Dioxins and furans at concentrations greater than 1 ppb 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) equivalents (TEQ) were detected in the treated soil after the first performance test. As a result, the unit was shut down by EPA to evaluate what had caused the problem and how it could be addressed. The unit was cleaned and the operating parameters changed. A second performance test was conducted in December 1999. The initial run for this test did not meet isokinetic requirements, and the last run did not meet destruction removal efficiency requirements, and the test was declared invalid because at least three runs need to meet all requirements. A third performance test was conducted in April 2000. This test met all requirements. WES was then authorized by EPA to begin processing contaminated soil.

Soils with PCB concentrations in excess of 10 ppm were excavated and stockpiled onsite. These soils were processed (screened) to ensure that the maximum particle size was less than two (2) inches. After screening, the soils were again stockpiled or fed to the pug-mill for treatment in the thermal unit. Treated soils were discharged from the unit and stored in 600-ton piles. These piles were sampled and analyzed for PCBs. Treated soils with PCB concentrations of less than 2 ppm were approved for use as backfill. The 1990 ROD identified 2 ppm PCBs as acceptable for use as backfill.

Deeper than anticipated PCB contamination was encountered near the location of the thermal desorption unit. During excavation discolored soil was detected traversing the area. The discolored soil was grayish in color, and field analytical data indicated high PCB concentrations. Continued excavation indicated that the deep contamination was confined to a "trench-like" feature. The location of this feature is presented as Figure 10. Conventional excavation was

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stopped at a depth of 19 feet bgs. The PCB concentration at this depth was over 500 ppm. Engineering and safety considerations required that the hole be backfilled until it could be determined how to proceed. An investigation of the soils' excavation overlying bedrock, using a Geoprobe, was performed. Geoprobe samples were obtained to the depth of bedrock or 45 feet bgs. The PCB contamination was detected at that depth. A retaining wall was constructed to protect the thermal unit during excavation of the deep contamination. All soils with PCB concentrations exceeding 10 ppm at any depth were excavated and thermally treated onsite.

Buried debris was encountered in the trench-like feature near the east perimeter of the Site. The majority of the debris was large. The debris was considered to be PCB contaminated and disposed of in an offsite Resource Conservation and Recovery Act (RCRA) permitted hazardous waste landfill.

Water that had been in contact with PCB-contaminated soils or debris was processed through the onsite water treatment plant. This included both storm water and any water used or generated during the treatment process. Treated water was used to re-hydrate treated soils and for dust control. Excess treated water was discharged to the city of Cape Girardeau's Publicly Owned Treatment Works (POTW). The treated water attained the specifications identified in the agreement between WES and the city of Cape Girardeau, Missouri.

Onsite thermal desorption of the PCB-contaminated soils began in April 2000 and concluded on July 25, 2000. Thirty-eight thousand, three-hundred seven (38,307) tons of PCB-contaminated soils were excavated and treated. Two thousand, six-hundred forty-four (2,644) tons of debris were excavated and sent to a RCRA hazardous waste landfill.

About half of the former customers, identified as being potentially responsible for the contamination at the Site, have been of MEW, Inc. involved in investigation or cleanup activities. A cost recovery action has been filed by the United States against some of the liable parties who have not participated in the remedial efforts at the Site.

3.0 Community Participation

Representatives of EPA and MDNR met with adjacent property owners and other interested parties during July 1989. The purpose of these meetings was to discuss the conditions at the Site and health risks posed by the Site to the general public. The EPA staff participated in two local Cape Girardeau radio "talk" shows during July 1989. During these programs, listeners were able to call in and ask questions of EPA staff concerning MEW activities.

A document repository was established at the Cape Girardeau Public Library. The Administrative Record for the MEW Site was placed in the repository during August 1989. An addendum to the Administrative Record was placed in the library during August 1990.

Public meetings were held in September 1989 and June 1990 to inform the citizens about the soils RI and its findings. The Proposed Plan and RI/FS reports for OU 1 were released to the public on August 18, 1990. Notice of the public comment period for the Proposed Plan was published in local newspapers on August 19, 1990. A public hearing was held on August 30,

1990. An availability session was held during December 1994 to get public input concerning the use of thermal desorption as a treatment technology. Several availability sessions were held during the soil remedial action. Fact sheets have been issued for all significant Site events.

A public meeting was held on September 8, 2005, to inform the citizens about the groundwater RI, its findings, and the preferred remedial alternatives to address groundwater contamination. The Proposed Plan and RI/FS reports for OU 2 were released to the public on August 21, 2005. Notice of the public comment period for the Proposed Plan was published in local newspapers on August 21, 2005. The public comment period ended on September 19, 2005. No public comments were submitted during this period.

4.0 Scope and Role of Operable Unit

Three (3) OUs have been designated at the Site. Remediation of the PCB-impacted soils was the focus of OU 1. OU 2 will address groundwater contamination. Ecological risk to the wetland area, from soils that migrated from the Site to the wetland area through surface water runoff, will be the focus of OU 3.

The original strategy for addressing contamination at the Site included thermal treatment of the impacted soils and the extraction and treatment of groundwater contaminated with chlorobenzene. These actions were selected to reduce the threat to human health and the environment represented by contamination at the Site. When it was discovered in 1991 that deep groundwater contamination was present at the Site, a decision was made to perform the remedial action selected for the soil and perform additional investigation of the groundwater contamination. These decisions were incorporated in the Statement of Work for the Consent Decree.

The soil remedial action was completed in 2000. The excavation and treatment of the PCB-contaminated soils with concentrations greater than 10 ppm resulted in a source control removal for the groundwater contamination.

Groundwater studies began in 2000 at the conclusion of the soil remedial action. Groundwater investigation efforts were not performed before the soil remedial action due to the potential for damage to expensive groundwater monitoring wells. Additionally, it is known that there is no current groundwater use in the vicinity of the Site.

The actions proposed to address groundwater contamination at OU 2 (groundwater OU) focus on the most efficient ways to deal with the contamination in the bedrock and in the alluvium while still protecting human health and the environment. The actions proposed in this document will address groundwater contamination and will provide what EPA believes to be the best balance when considering the nine (9) criteria specified in section 300.430(e)(9)(iii) of the NCP.

Groundwater monitoring of COCs will be conducted as part of this remedial action. The data generated during long-term monitoring will be used to assess ecological risks to the wetland area. With the implementation of the groundwater cleanup, risks to human health and the environment will be within acceptable ranges. Investigation of the contamination present in, and

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evaluation of the ecological risks to, the wetland area will be performed As part of OU 3. Actions necessary to protect the environment (the wetland area) will be identified after the study and evaluation are complete.

5.0 Site Characteristics

The upland area is located on top of a flattened ridge that is oriented southwest to northeast. This ridge separates the valley of the Cape LaCroix Creek to the north and a low-lying wetland area to the south. Wetland Creek flows eastward across the wetland area and joins Cape LaCroix Creek approximately 0.7 miles east of the upland area. Cape LaCroix Creek joins the Mississippi River about 1.5 miles southeast of the upland area. Figure 11 provides topographical relief of the area with major features identified.

Ground surface elevation at the upland area is approximately 405 feet above sea level (ASL). South of the upland area, the ground slopes downward toward Wilson Road. Wilson Road forms the northwestern boundary of the wetland area. A runoff channel is located near the eastern boundary of the MEW, Inc. property and drains toward the wetland area to the southeast. Elevation of the wetland area ranges from 360 feet ASL at Wilson Road to 351 feet ASL at the Wetland Creek. North of the MEW, Inc. property, the ground surface slopes downward to the relatively flat valley bottom of Cape LaCroix Creek.

The MEW, Inc. property is bounded on the north and east by retail and commercial properties and to the south by retail properties. The western boundary of the MEW, Inc. property is U.S. Highway 61 (Kingshighway). The upland area currently consists of a grass field with a single concrete building in the northwest corner. The building is used for equipment storage.

Southeastern Missouri contains exposures of geologic formations ranging in age from Paleozoic to recent. Older Paleozoic exposures are typically confined to the Ozark Plateau region. Geologic structure of bedrock in southeastern Missouri generally consists of unfolded shallow dipping beds except in areas where faulting has occurred. Faulting within the state is most prevalent in the pre-Pennsylvanian period. Geological faults common to Missouri average a displacement distance of 100 feet.

The uppermost deposit in the Cape Girardeau area consists of an undifferentiated surficial Pleistocene age loess. The loess can be up to 30 feet thick and consists of silts and silty clays. The loess was deposited during an eolian (wind blown) erosional and depositional period within the Pleistocene age. The loess overlies limestone bedrock of the Ordovician age.

The Ordovician age limestone bedrock dips toward the northeast at a maximum of two degrees. The bedrock units contain numerous faults that are not seismically active. However, the Cape Girardeau area is about 25 miles from the epicenter line of the New Madrid area earthquakes. The Cape Girardeau fault is located one mile east-northeast of the Site.

Beneath the loess covering the Site lays the Plattin Formation. The Plattin Formation is a slightly dolomitic and fossiliferous limestone which can be over 400 feet thick. The Plattin Formation is underlain by the Rock Levee Formation.

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The United States Geological Survey (USGS) solid geology map indicates two faults trending northwest to southeast near the western boundary of the upland area. A rock unit labeled "Megabreccia" is mapped between these two faults and is likely to consist of tectonically disrupted limestones associated with the fault zone. Breccia materials were not encountered during Site investigations.

At the upland area, the native surficial soils consist of 15 to 25 feet of the loess underlain by a brownish-red gravelly clay. The loess erodes easily. The gravelly clay is derived by the weathering degradation of the Platin Formation. The Platin Formation was encountered at depths ranging from 30 to 90 feet bgs, often within just a short lateral distance. The great variability of the depth to bedrock is very likely related to the development of a karstic limestone surface. Karstic surfaces, as shown in Figure 12, are typified by differential or uneven weathering of bedrock, particularly limestone, surfaces. This uneven weathering is generally caused by water flowing over or through bedrock along bedding planes, fractures, and joints.

The majority of the MEW, Inc. property was excavated to remediate the PCB-contaminated soils. These soils were thermally treated and later used to backfill excavations. The treated soils are dark in color and erode easily.

Subsurface information obtained during the groundwater RI was derived from the installation of 16 new monitoring wells and the construction of 23 boreholes. Locations of the monitoring wells are indicated in Figure 13.

Interpretation of the bedrock in the upland area, using data gathered during subsurface investigations, geophysical investigations, and fracture alignment studies indicates the presence of several significant fractures/fracture zones. The locations of these features are shown in Figure 14. The interpretations can be summarized as:

- The upper weathered zone or epikarst is located within the upper 50 feet of the bedrock. This zone is characterized by large linear solution channels with large solution features occurring at the intersections of vertical fractures.
- The intermediate bedrock, 50 to 164 feet deep, is characterized by persistent vertical fractures with limited solution features.
- The deep bedrock, greater than 164 feet deep, has discrete vertical fractures. Discrete solution features have been detected at depth.

Groundwater level hydrographs from well MW-3 (completed in the weathered zone) and well MW-11 (completed in the intermediate zone) indicate that groundwater within the upper 165 feet of limestone has good hydraulic communication. The hydrograph for well MW-11A (completed in the deep zone) indicates a different response to precipitation events than those for wells MW-3 and MW-11. This suggests the hydraulic connectivity/conductivity between the intermediate and deep limestone is not as great as that between the upper and intermediate zones. There appears to be a downward hydraulic gradient between the upper and deep bedrock. Hydrographs for the upper, intermediate, and deep bedrock are provided as Figure 15.

The abundant fractures and solution features within the limestone result in myriad possible groundwater flow paths. Conceptual groundwater flow within limestone is depicted in Figure 16. Identification of contaminant migration within the bedrock is impossible to predict. Pumping water from karst environments often worsens the problem by inducing contaminant migration in other directions. Contaminated groundwater originating from the upland area could, and probably does, exit the bedrock into the alluvium in numerous places.

Information on the subsurface geology at the Site gathered during the investigations indicates the presence of a deep erosional feature or depression in the vicinity of the wetland area. The materials encountered at borehole locations within the wetland area indicate alluvial deposits within this feature. The alluvial deposits consist of rounded sands, silty sands, and occasional discontinuous clay layers. Rounded coal deposits, which provide additional evidence of deposition from flowing water, were encountered at MW-21B. Interpretations of borehole information indicate that a significant portion of the Platin Formation has been eroded south of Wilson Road. The depression extends to a depth of 140 feet bgs at the locations of MW-16C and MW-20C. The feature is likely a buried river channel. Several interpretations can be made regarding the deep area within the channel; the deep area could be the result of differential erosion within the channel or collapse of a karstic structure (sinkhole).

Cross-sections of the study area have been prepared to assist in highlighting the geological subsurface from the upland area to the wetland area. Three cross-sections, identified as A-A', B-B', and C-C' have been developed to assist in the understanding of the subsurface lithology and the significant differences that exist between the upland and wetland areas. The locations of these cross-sections are indicated in Figure 17. Cross-section A-A', Figure 18, extends from well MW-9 on the upland area to well MW-21B in the southern portion of the wetland area. Cross-section B-B', Figure 19, extends from MW-18 to BH-19I. Cross-section C-C', Figure 20, extends from MW-20C to BH-19F. The upland area is characterized by loess overlying limestone bedrock. The wetland or valley area is characterized by alluvial deposits.

The presence of the discontinuity within the bedrock, the alluvium-filled depression, indicates that there are two distinct groundwater regimes in the vicinity of the Site. Figure 21 presents an interpretation of the upland/wetland area interface and possible groundwater flow in both the bedrock and alluvium. Movement of groundwater within the bedrock is controlled by fracture and bedding planes, both vertical and horizontal. It appears that the majority of the bedrock groundwater flow is occurring in the upper and intermediate bedrock zones. Groundwater movement within the depression can be characterized as porous-media flow. Groundwater originating in the bedrock flows into the alluvium. Data gathered during the groundwater RI indicate that there is an upward hydraulic gradient in the area near well clusters MW-16, MW-20, and MW-21. Discussions concerning groundwater will be identified as pertaining either to the fractured bedrock groundwater or the alluvial groundwater. This distinction is necessary due to the fundamental differences in the contaminant transport and groundwater flow within the two groundwater regimes.

Quarterly groundwater monitoring was conducted from 2001 until February 2005. Groundwater samples were analyzed for inorganic compounds; VOCs, SVOCs, and PCBs were performed on collected groundwater samples. The monitoring well network initially consisted of wells

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installed in the upland area. Monitoring wells were installed in the wetland area during 2003 and 2004. Groundwater samples from the wetland area (alluvium) were not analyzed for PCBs. A summary of the groundwater data collected between 2000 and 2005 is attached as Appendix A. The main organic compounds detected include: 1,1,1-TCA; TCE; PCE; 1,1-DCA; 1,1-DCE; 1,2-DCE; benzene; chlorobenzene; 1,2,4-TCB; 1,2-DCB; 1,3-DCB; 1,4-DCB; and PCBs. Summaries for each compound are included as Tables A-1 to A-14. Groundwater data collected between 1989 and 1991 are attached as Tables A-15.

Chlorobenzene, 1,2-DCB, 1,3-DCB, 1,4-DCB, 1,2,4-TCB, and benzene are all potential components of dielectric fluid contained in the transformers handled by MEW, Inc. Degradation of chlorinated solvent compounds can occur through both abiotic and biotic mechanisms. Chlorinated solvents may biodegrade both aerobically and anaerobically. Degradation products and pathways for 1,1,1-TCA, PCE, and chlorobenzene are provided as Figures 22-24.

The source of organic contamination impacting the groundwater is thought to be the result of the business practices of MEW, Inc. The MEW, Inc. property soils were significantly impacted as a result of the operations of MEW, Inc. The soil remedial action removed and treated over 38,000 tons of PCB-contaminated soils. During the soil remedial action, PCB contamination was detected to the top of the bedrock. The source areas for the groundwater contamination are thought to be contamination remaining in the soils in the area of wells MW-3, MW-5, MW-11, and MW-11A (Source Area 1), and the former transformer storage area (Source Area 2). These source areas are indicated in Figure 25. All PCB contamination in the area of wells MW-3, MW-5, MW-11, and MW-11A could not be removed without damage to the wells. Therefore, some PCB contamination may remain in that area. For that reason, it is assumed that Source Area 1 is the source for chlorobenzene, benzene, 1,3-DCB, and 1,4-DCB contamination. Source Area 2 is considered to be the source of TCE and PCE since there are indications that solvents containing TCE and PCE may have been disposed of in this area. TCE and PCE do not have the affinity for soils that PCBs do and, therefore, may have migrated deeper.

6.0 Current and Potential Future Site and Resource Uses

Current and anticipated future land and groundwater uses are an important component of risk evaluation. The upland area of the Site is zoned as "M2" indicating that heavy industrialized uses are permitted; the wetland area of the Site is zoned as "M1" indicating that light industrial uses are permitted. Neither area is currently zoned for residential uses; however, a special use permit or zoning variance could be granted that would allow future residential land use. No populations are currently exposed to the contaminated groundwater. The decision tree process used to determine which exposure pathways were evaluated is presented as Figure 26. The Baseline Human Health Risk Assessment (BHHRA) considered four populations that could have future exposure to the contaminated groundwater. These populations include: 1) onsite adult worker, 2) offsite construction worker, 3) offsite child resident (between the ages of 0 to 6 years), and 4) offsite adult resident. The onsite worker and the offsite construction worker scenarios were considered as possible current exposures as well as future exposures. (For purposes of this discussion, "onsite" refers to the MEW, Inc. property and "offsite" refers to the wetland area.)

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7.0 Summary of Site Risks

A BHHRA was conducted by the Settling Defendants to assess the risks posed to human health by the groundwater contaminants. An ecological risk assessment was not performed. Nineteen (19) groundwater monitoring events were conducted during the groundwater RI. Inorganic compounds were investigated during the initial RI work, and it was determined that the inorganic compound concentrations detected at the Site were not associated with the activities of MEW, Inc. Therefore, inorganic compounds were not evaluated during the BHHRA. Organic chemicals of potential concern (COPCs) were selected from all compounds analyzed in groundwater samples from the Site. The COPCs were identified by comparing the maximum concentrations detected with screening toxicity values. For compounds that were not detected, the maximum method detection limit (MDL) was used as the screening concentration. The EPA, Region 9, Preliminary Remediation Goals (PRGs) were used as toxicity screening values when available. For non-carcinogenic compounds, a value of one-tenth the PRG was used to account for potential accrual of non-cancer health effects.

Chemical analysis was conducted for a total of 102 organic compounds. Twenty-nine (29) organic compounds were detected in Site groundwater samples; of these, seventeen (17) had maximum concentrations in excess of the screen toxicity value and were retained as COPCs. Thirty-one (31) of the undetected compounds had a maximum MDL in excess of the screening toxicity value. These compounds were also retained as COPCs. Eleven (11) of the non-detected COPCs had no available PRGs. Surrogate screening values were used for these compounds. An additional four (4) COPCs with no available screening toxicity values were retained as COPCs, but were not evaluated quantitatively in the risk assessment. A total of fifty-two (52) COPCs were retained and evaluated in the BHHRA. The COPCs are identified in the following table.

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Chemicals of Potential Concern (COPCs)

Detected Organics	Undetected Organics	
1,1-Dichloroethane	1,1,2,2-Tetrachloroethane	Benzo(k)fluoranthene
1,2,4-Trichlorobenzene	1,1,2-Trichloroethane	Bis(2-Chloroisopropyl) Ether
1,2-Dichloroethene Total	1,2-Dichloroethane	Carbon Tetrachloride
1,3-Dichlorobenzene	1,2-Dichloropropane	Chlorodibromomethane
1,4-Dichlorobenzene	2,4,6-Trichlorophenol	Dibenzo(a,h)Anthracene
2-Chlorophenol	2,4-Dinitrotoluene	Dibenzofuran
Aroclor-1260	2,6-Dinitrotoluene	Hexachloro-1,3-Butadiene
Benzene	3,3-Dichlorobenzidine	Hexachlorobenzene
Bis(2-Chloroethyl) Ether	4,6-Dinitro-2-Methyl Phenol	Indeno(1,2,3-cd)Pyrene
Bis(2-ethylhexyl)phthalate	Aroclor 1016	2-Methylnaphthalene
Bromodichloromethane	Aroclor-1221	Nitrobenzene
Chlorobenzene	Aroclor-1232	Pentachlorophenol
Chloroform	Aroclor-1242	Vinyl Chloride
Naphthalene	Aroclor-1248	Bis (2-Chloroethoxy) Methane*
N-Nitrosodi-n-propylamine	Aroclor-1254	4-Bromophenyl Phenyl Ether*
Tetrachlorethene	Benzo(a)anthracene	4-Chlorophenyl Phenyl Ether*
Trichloroethene	Benzo(a)pyrene	4-Chloro-3-Methylphenol*
	Benzo(b)fluoranthene	

Quantitative evaluation of the risks associated with these chemicals is not possible due to the absence of available data. These chemicals have not been included in the risk calculations.

Pathways through which populations could potentially become exposed were evaluated. These pathways include: 1) inhalation of the COPCs, 2) ingestion of the COPCs, and 3) dermal (skin) contact with the COPCs. Modeling of groundwater flow was performed for the fractured bedrock and the alluvium. Using the results of these groundwater models, four (4) exposure points were established. These exposure points are identified as Hypothetical Well A (HW-A), Hypothetical Well B (HW-B), Hypothetical Well C (HW-C), and Hypothetical Well D (HW-D). The locations of these exposure points are indicated on Figure 27.

- HW-A, identified as "Well A" on Figure 27, is located to the southeast of the MEW property near the now abandoned MW-8. HW-A is hydraulically down-gradient of the upland source areas. The well is situated within the modeled COPC plume. HW-A represents worst-case concentrations for the majority of the COPCs.
- HW-B, identified as "Well B" on Figure 27, is located hydraulically down-gradient of the upland area next to Wilson Road. It is situated near the center of the modeled COPC plume. HW-B contains worst-case concentrations for COPCs not present at the location of HW-A.
- HW-C, identified as "Well C" on Figure 27, is located east of exiting monitoring wells MW-17A and MW-17B. This well is located outside the boundary of the modeled COPC plume.
- HW-A and HW-B locations were selected as exposure points because these locations represent the worst-case conditions for contaminants migrating from the upland area.
- HW-D is not identified on Figure 27. The location of HW-D represents the maximum predicted or actual COPC concentrations modeled at HW-A and HW-B.

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or measured at monitoring wells. As such, the location of HW-D could not be predicted with the modeling tools utilized during this study. This scenario was included as a conservative measure.

Incremental lifetime cancer risks and a measure of the potential for non-carcinogenic adverse health effects were estimated for each population in each exposure scenario. The incremental lifetime cancer risk (ILCR) from a carcinogen is calculated as a product of the reasonable maximum daily intake (quantified as milligrams per kilogram of body weight per day, mg/kg-d) and the cancer slope factor (CSF). The resultant product is an estimate of the incremental cancer risk. The EPA groups chemicals according to their potential for carcinogenic effects based on clinical evidence.

- Group A Human carcinogen
- Group B Probable human carcinogen
- Group C Possible human carcinogen
- Group D Insufficient data to classify as a human carcinogen
- Group E Not a human carcinogen

The following table provides information regarding the classification of each COPC.

Carcinogenic and Non-Carcinogenic COPC

Carcinogens			
Chemical	Classification	Chemical	Classification
Tetrachlorethene	C-B2 Continuum	Aroclor-1254	B2
Trichloroethene	C-B2 Continuum	Aroclor-1260	B2
1,1,2,2-Tetrachloroethane	C	Benzo(a)anthracene	B2
1,1,2-Trichloroethane	C	Benzo(a)pyrene	B2
1,1-Dichloroethane	C	Benzo(b)fluoranthene	B2
1,4-Dichlorobenzene	C	Benzo(k)fluoranthene	B2
Chlorodibromomethane	C	Bis(2-ethylhexyl)phthalate	B2
Hexachloro-1,3-Butadiene	C	Bis(2-Chloroethyl) Ether	B2
Naphthalene	C	Bromodichloromethane	B2
1,2-Dichloroethane	B2	Carbon Tetrachloride	B2
1,2-Dichloropropane	B2	Chloroform	B2
2,4,6-Trichlorophenol	B2	Dibenzo(a,h)Anthracene	B2
2,4-Dinitrotoluene	B2	Hexachlorobenzene	B2
2,6-Dinitrotoluene	B2	Indeno(1,2,3-cd)Pyrene	B2
3,3-Dichlorobenzidine	B2	Nitrosodi-n-propylamine	B2
Aroclor-1221	B2	Pentachlorophenol	B2
Aroclor-1232	B2	Benzene	A
Aroclor-1242	B2	Vinyl Chloride	A
Aroclor-1248	B2		

Note: A chemical with a B2 classification is a probable human carcinogen.

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Non-Carcinogens			
Chemical	Classification	Chemical	Classification
2-Chlorophenol	Not known	1,2-Dichloroethene (cis)	D
4,6-Dinitro-2-Methyl Phenol	Not known	1,2-Dichloroethene (trans)	D
Aroclor 1016	Not known	1,2,4-Trichlorobenzene	D
Bis(2-Chloroisopropyl) Ether	Not known	1,3-Dichlorobenzene	D
Methylnaphthalene	Not known	Chlorobenzene	D
Trichloroethene ¹	Highly likely	Dibenzofuran	D
		Nitrobenzene	D

1 Trichloroethene has not been conclusively identified as a carcinogen. However, EPA guidance indicates that it should be considered a possible to probable carcinogen. Therefore, the compound is listed in both tables.

For the non-carcinogenic effects of chemicals, EPA assumes a dose exists below which no adverse health effects are observed. Below this "threshold" exposure, it is believed that exposure to a chemical can be tolerated with no adverse health effects, and the body burden is not increased. The reference dose (RfD), expressed in units of mg/kg-d, is the threshold dose. An RfD is specific to the chemical, route of exposure, and duration over which the exposure occurs. A Hazard Index (HI) value was estimated for non-carcinogenic compounds. The HI is a ratio between the estimated exposure dose and the RfD. Generally, if the HI is less than one (1), the predicted exposure dose is unlikely to cause harmful non-carcinogenic health effects. The potential for adverse non-carcinogenic health effects increases as the HI increases above one.

Due to the potential additive effects of contaminant exposure via the different exposure pathways, ingestion, inhalation, and dermal contact scenarios which would result in contact with contaminated groundwater were identified. There are two routes of potential human exposure: 1) occupational, and 2) residential. Occupational exposure could occur to workers employed on the MEW, Inc. property or to construction workers in the wetland area. Residential exposures were considered for future dwellings constructed in the wetland area. These exposure assumptions were evaluated for future uses of the MEW, Inc. property and the wetland area. No current exposure risk was evaluated for the groundwater. Information indicates that there are currently no users of either the upper-intermediate or deep portions of the aquifer.

For purposes of the BHHRA, it was assumed that no remedial work would be performed at the Site. This was done so that possible future risks posed by the contamination could be evaluated. The calculated potential risks posed by the groundwater contamination are summarized in Tables 1 and 2.

The analyses performed indicated that groundwater impacted by Site contamination presents an unacceptable risk to human health. The calculated human health risks are the result of chemicals released to the environment during the operations of MEW, Inc. Response actions are necessary to address the unacceptable risk to human health posed by releases from the Site.

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TABLE 1

**SUMMARY OF TOTAL INCREMENTAL LIFETIME CANCER RISK (ILCR)
FOR EACH EXPOSURE SCENARIO FOR RME AND CTE**

Exposure Scenario	EPA Acceptable Risk Range	Receptor	Reasonable Maximum Exposure (RME)			Central T
			High (0.4)	Moderate (0.02)	Low (0.006)	High (0.4)
ON-SITE WORKER	1.E-04 to 1.E-06	Adult	1.E-05	6.E-06	6.E-06	2.E-06
OFFSITE CONSTRUCTION Worker	1.E-04 to 1.E-06	Adult	5.E-07	4.E-07	4.E-07	2.E-07
OFFSITE RESIDENT - WELL A	1.E-04 to 1.E-06	Child	4.E-03	4.E-03	4.E-03	8.E-04
		Adult	8.E-03	7.E-03	7.E-03	2.E-03
		Total	1.E-02	1.E-02	1.E-02	3.E-03
OFFSITE RESIDENT - WELL B	1.E-04 to 1.E-06	Child	3.E-03	3.E-03	3.E-03	6.E-04
		Adult	6.E-03	5.E-03	5.E-03	1.E-03
		Total	9.E-03	8.E-03	8.E-03	2.E-03
OFFSITE RESIDENT - WELL C	1.E-04 to 1.E-06	Child	8.E-07	3.E-07	3.E-07	2.E-07
		Adult	1.E-06	5.E-07	4.E-07	3.E-07
		Total	2.E-06	4.E-07	3.E-07	4.E-07
OFFSITE RESIDENT - WELL D (WORST CASE SCENARIO)	1.E-04 to 1.E-06	Child	4.E-03	4.E-03	4.E-03	8.E-04
		Adult	8.E-03	7.E-03	7.E-03	2.E-03
		Total	1.E-02	1.E-02	1.E-02	3.E-03
TRESPASSER	1.E-04 to 1.E-06	Child	1.E-08	1.E-08	1.E-08	2.E-09
		Adult	2.E-08	2.E-08	2.E-08	1.E-09
		Total	3.E-08	3.E-08	3.E-08	3.E-09

Notes: Bold values indicate Total ILCR exceeds acceptable level of risk (Greater than 1.0E-4).

* All values have been rounded to one significant digit.

TABLE 2

SUMMARY OF HAZARD INDEX (HI) FOR EACH EXPOSURE SCENARIO FOR F

EXPOSURE SCENARIO	U.S. EPA Acceptable HI	Receptor	Reasonable Maximum Exposure (RME) *
ON-SITE WORKER	1	Adult	0.1
OFFSITE CONSTRUCTION WORKER	1	Adult	2
OFFSITE RESIDENT -- WELL A	1	Child	123
		Adult	53
OFFSITE RESIDENT -- WELL B	1	Child	69
		Adult	30
OFFSITE RESIDENT -- WELL C	1	Child	0.06
		Adult	0.03
OFFSITE RESIDENT -- WELL D (WORST CASE SCENARIO)	1	Child	124
		Adult	53
TRESPASSER	1	Child	0.001
		Adult	0.002

Notes:

Bold underlined values indicate Total HI exceeds U.S. EPA's acceptable level (HI=1).

* All values have been rounded to one significant digit.

8.0 Remedial Action Objectives

The EPA's national goal for the Superfund program is to select remedies that will be protective of human health and the environment, that will maintain protection over time, and that will minimize untreated waste. The NCP identifies the remedial action expectations for contaminated groundwater at Superfund sites as, *"EPA expects to return usable ground waters to their beneficial uses whenever practicable, within a time-frame that is reasonable given the particular circumstances of the site. When restoration of ground water to beneficial uses is not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated ground water and evaluate further risk reduction."* 40 C.F.R. § 300.430(a)(1)(iii)(F). Based on this expectation, the following general goals are applicable to groundwater remedial actions.

- Prevent exposure to contaminated groundwater which might pose an unacceptable risk
- Prevent or minimize further migration of the contaminant plume
- Prevent or minimize further migration of COCs from source materials to groundwater
- Return groundwater to expected beneficial uses whenever practicable

The RAOs define the extent of cleanup required to protect human health and the environment and to comply with ARARs. The ARARs are categorized as action specific, chemical specific, and location specific. The ARARs for the Site, divided by category, are attached as Appendix B. The RAOs will identify the environmental media, the COCs, exposure pathways, and potential receptors and target cleanup levels (TCLs) for each pathway/receptor.

The COCs for the Site were selected after review of the BHHRA. A COC is defined as a COPC that contributes significantly to the risk of a receptor that either exceeds a state or federal chemical-specific ARAR or exceeds a 10^{-6} cumulative site cancer risk or non-carcinogenic HI of one. The COPCs not meeting this criterion were not considered to be significant contributors of risk and were not classified as COCs. There are 37 COCs identified for the Site. These chemicals, the observed maximum concentration and concentrations resulting in human health risks greater than 10^{-6} ICLR or an HI = 1, are presented in the following table.

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Table 3
Chemicals of Concern (COCs)

	COC	Observed Maximum Concentration (ug/L)	Concentrations (ug/L) resulting in Human Health Risk greater than 10^{-6} ICLR or HI = 1
Detected PCB, VOCs and SVOCs	1,2,4-Trichlorobenzene	62	0.17
	1,3-Dichlorobenzene	100	28
	1,4-Dichlorobenzene	120	2.9
	2-Chlorophenol	9J	8.9
	Aroclor 1260	110	0.002
	Benzene	83	0.97
	Bis(2-Chloroethyl) Ether	6J	0.02
	Bis(2-ethylhexyl)phthalate	120	1.9
	Chlorobenzene	3,200	2.1
	Chloroform	13	0.4
	Naphthalene	8.7J	0.3
	N-Nitrosodi-n-propylamine	8.1J	0.02
	Tetrachloroethene	8.6	0.02
	Trichloroethene	13	0.17
Non-detected PCBs, VOCs, and SVOCs	1,2-Dichloroethane	--	0.22
	1,2-Dichloropropane	--	0.015
	2,4,6-Trichlorophenol	--	0.1
	2,4-Dinitrotoluene	--	0.26
	2,6-Dinitrotoluene	--	0.06
	3,3-Dichlorobenzidine	--	0.74
	4,6-Dinitro-2 Methyl Phenol	--	0.18
	Aroclor 1016	--	0.05
	Aroclor 1221	--	0.13
	Aroclor 1232	--	0.13
	Aroclor 1242	--	0.01
	Aroclor 1248	--	0.02
	Aroclor 1254	--	0.0004
	Benzo(a)anthracene	--	0.05
	Benzo(a)pyrene	--	0.003
	Benzo(b)fluoranthene	--	0.08
	Benzo(k)fluoranthene	--	0.15
	Dibenzo(a,h)Anthracene	--	0.0009
	Hexachloro-1,3-Butadiene	--	0.05
	Hexachlorobenzene	--	0.01
	Indeno(1,2,3-cd)Pyrene	--	0.04
	Nitrobenzene	--	0.18
	Pentachlorophenol	--	0.13
	Vinyl Chloride	--	0.21

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Groundwater TCLs were developed to be protective of human health and to comply with chemical-specific ARARs. Additionally, the TCLs were compared to the practically attainable analytical reporting limits to ensure that compliance could be confirmed. The identified TCLs are equivalent to the MCL for COCs which have established federal or state MCLs. For COCs without promulgated MCLs, the TCL was chosen to be equivalent to water quality standards (WQS) or groundwater target concentrations (GTARC), whichever is greater. The proposed TCLs for the Site are summarized in Table 4.

The following are RAOs for groundwater at the Site:

- Prevent exposure of receptors, both in the upland and wetland areas, to fractured bedrock and alluvial groundwater when COC concentrations exceed TCLs
- Prevent future use of the aquifer underlying the Site as a source of drinking water
- Assess and manage the migration of COCs in the fractured bedrock and alluvial groundwater
- Assess and manage the migration of COCs from fractured bedrock into the alluvium

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Table 4

Chemicals of Concern (COCs) and Target Cleanup Levels (TCLs)

	COCs	Calculated Concentration resulting in a Human Health Risk ¹	Potential TCLs				R (up)
			ARARs				
			SDWA MCL (ug/L)	MDNR MCL (ug/L)	MDNR WQS (ug/L)	MDNR GTARC (ug/L)	
Detected PCB, VOCs and SVOCs	1,2,4-Trichlorobenzene	0.17	70	70	70	70	0.
	1,3-Dichlorobenzene	28	--	--	--	--	1.
	1,4-Dichlorobenzene	2.9	75	75	75	75	0.
	2-Chlorophenol	8.9	--	--	0.1	40	1
	Aroclor 1260	0.002	0.5	0.5	0.000045	0.5	0
	Benzene	0.97	5	5	5	5	0
	Bis(2-Chloroethyl) Ether	0.02	--	--	0.3	0.03	
	Bis(2-ethylhexyl)phthalate	1.9	--	--	6	6	
	Chlorobenzene	2.1	100	100	--	100	0
	Chloroform	0.4	--	--	--	80	0
	Naphthalene	0.3	--	--	--	100	
	N-Nitrosodi-n-propylamine	0.02	--	--	--	--	
	Tetrachloroethene	0.02	5	5	5	5	1
	Trichloroethene	0.17	5	5	5	5	1
Non-detected PCBs, VOCs, and SVOCs	1,2-Dichloroethane	0.22	5	5	5	5	
	1,2-Dichloropropane	0.015	5	5	--	5	
	2,4,6-Trichlorophenol	0.1*	--	--	2	0.3	
	2,4-Dinitrotoluene	0.26	--	--	0.11	0.05	
	2,6-Dinitrotoluene	0.06	--	--	--	0.05	
	3,3-Dichlorobenzidine	0.74	--	--	0.04	0.04	
	4,6-Dinitro-2 Methyl Phenol	0.18	--	--	--	--	
	Aroclor 1016	0.05	0.5	0.5	0.000045	0.5	
	Aroclor 1221	0.13	0.5	0.5	0.000045	0.5	
	Aroclor 1232	0.13	0.5	0.5	0.000045	0.5	
	Aroclor 1242	0.01	0.5	0.5	0.000045	0.5	
	Aroclor 1248	0.02	0.5	0.5	0.000045	0.5	

	Aroclor 1254	0.0004	0.5	0.5	0.000045	0.5	0
		Calculated Concentration resulting in a Human Health Risk ¹	Potential TCLs				
			ARARs				
	COCs		SDWA MCL (ug/L)	MDNR MCL (ug/L)	MDNR WQS (ug/L)	MDNR GTARC (ug/L)	R (u)
Non-detected PCBs, VOCs, and SVOCs	Benzo(a)anthracene	0.05	--	--	--	0.0044	
	Benzo(a)pyrene	0.003	0.2	0.2	0.2	0.2	
	Benzo(b)fluoranthene	0.08	--	--	0.0044	0.0044	
	Benzo(k)fluoranthene	0.15	--	--	0.0044	0.0044	
	Dibenzo(a,h)Anthracene	0.0009	--	--	0.0044	0.0044	
	Hexachloro-1,3-Butadiene	0.05	--	--	--	--	
	Hexachlorobenzene	0.01	1	1	1	1	
	Indeno(1,2,3-cd)Pyrene	0.04	--	--	0.0044	0.0044	
	Nitrobenzene	0.18	--	--	17	17	
	Pentachlorophenol	0.13	1	1	1	1	
	Vinyl Chloride	0.21	2	2	2	2	

Abbreviations:

ARARs Applicable or Relevant and Appropriate Requirement
 COC Chemical of Concern
 GTARC Groundwater Target Cleanup Levels
 HI Hazard Index
 ILCR Incremental Lifetime Cancer Risk
 MCL Maximum Contaminant Level
 MDNR Missouri Department of Natural Resources
 RL Reporting Limit
 SDWA Safe Drinking Water Act
 TCLs Target Cleanup Levels
 ug/L Microgram per liter

Notes:

¹ Concentrations represent an ICLR or HI outside EPA's acceptable risk range (HI > 1 and ICLR > 10⁻⁴ to 10⁻⁶).

² Analytical RLs presented for VOCs and PCBs are one order of magnitude greater than the method detection limits (MDLs) detailed Methods 8260B (for VOCs) and 8082 (for PCBs). Analytical RLs presented for SVOCs are equivalent to the estimated quantitation limit documentation for Methods 8270C.

9.0 Description of Alternatives

The Settling Defendants performed a FS to develop and evaluate alternatives for addressing the groundwater contamination at the Site. The remedial alternatives that received a detailed evaluation in the FS are identified below. Alternatives that address groundwater contamination in the fractured bedrock are identified with a "FB" prefix, while those alternatives that address groundwater contamination in the alluvium are identified with an "AL" prefix. Identification numbers match those presented in the FS. All costs and implementation times are estimates.

The Settling Defendants prepared a report titled, "Fractured Bedrock Technical Impracticability Evaluation Report" to assess the ability of technologies currently available to address the groundwater contamination in the fractured bedrock. This report is dated June 2005. The report concludes that there are currently no technologies available to remediate the fractured bedrock groundwater contamination.

For contaminated groundwater in the fractured bedrock, the following alternatives were retained:

- | | |
|--------------------|----------------|
| • Alternative FB-1 | No Action |
| • Alternative FB-2 | Limited Action |

For contaminated groundwater in the alluvium, the following alternatives were retained:

- | | |
|--------------------|-------------------|
| • Alternative AL-1 | No Action |
| • Alternative AL-2 | Limited Action |
| • Alternative AL-3 | Collection |
| • Alternative AL-4 | Discharge |
| • Alternative AL-5 | In-situ Treatment |

Certain parameters needed for response alternative evaluation were not readily available. Estimates or assumptions were made for these parameters. These assumptions, quantity of groundwater impacted, important ARARs, and future anticipated land use were identical for all response alternatives. The quantity of impacted groundwater was estimated to be about 320,000 gallons (this is likely an underestimate since some COCs are sorbed to soil or aquifer particles and may be a continuing source of contamination). The key ARARs are a combination of chemical-specific, action-specific, and location-specific requirements. The ARARs are identified in Tables B-1, B-2, and B-3. Land use in the area was assumed to be predominately commercial/industrial with a possibility of a "special use" residential use within the wetland area.

Pursuant to Section 121(c) of CERCLA and the NCP, the response actions performed at the Site will be reviewed every five (5) years to evaluate whether or not they continue to be protective of human health and the environment. The EPA has interpreted Section 121(c) of CERCLA, as codified in the NCP [40 C.F.R. §300.430(f)(4)(ii)] in the following manner:

"If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted

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exposure, the lead agency shall review such action no less often than every five years after initiation of the selected remedial action."

9.1 Fractured Bedrock Groundwater

Technical Impracticability (TI) Waiver

The highly variable and complex nature of the fractured bedrock at the MEW Site is such that any attempt to remediate the contamination will likely worsen the problem. The June 2005 "Fractured Bedrock Technical Impracticability Evaluation Report" provides an in-depth discussion with regards to why remediation of the fractured bedrock groundwater contamination cannot be achieved with technologies currently available. Therefore, a TI waiver for chemical-specific ARARs will be a component of the selected action for fractured bedrock groundwater. This TI waiver will apply only to the groundwater contained in the fractured bedrock. The area to which the TI waiver applies is approximately identified on Figure 4 and is designated as the "Upland Area".

9.1.1 FB-1 No Action

This action was retained as required by section 300.430(e)(3)(ii)(6) of the NCP. This action provides a baseline with which to compare other response actions, "No Action" entails no activities to contain or address COCs at the Site, provides no treatment of COCs, and provides no legal or administrative protection of human health or the environment. "No Action" assumes that physical conditions at the Site remain unchanged.

No RAOs would be achieved using this alternative. Since no additional work would be performed, there would be no implementation requirements. Contamination from the Site would remain unchanged. No time would be needed to construct the alternative, and no costs would be associated with implementation of this alternative.

9.1.2 FB-2 Limited Action

This alternative as proposed will include four (4) components: TI waiver for chemical-specific ARARs, ICs, wellhead treatment, and long-term groundwater monitoring. Information for each of these components is provided below.

Since it is not technically practicable from an engineering perspective to remediate the fractured bedrock groundwater, attainment within the fractured bedrock groundwater area of the Safe Drinking Water Act (SDWA) MCLs (40 CFR §141.11 – 141.14), revised MCLs (40 CFR §141.61 – 141.62) and non-zero Maximum Contaminant Level Goals (MCLGs) (40 CFR §141.60 – 141.51) are waived for 1,1,1-TCA; TCE; PCE; 1,1-DCA; 1,1-DCE; 1,2-DCE; benzene; chlorobenzene; 1,2,4-TCB; 1,2-DCB; 1,3-DCB; 1,4-DCB; and PCBs.

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The ICs will be implemented to enhance the effectiveness of the engineered controls. The owner of the MEW, Inc. property has recorded a certified copy of a Consent Decree entered into between the U.S. and MEW, Inc. with the Recorder of Deeds of Cape Girardeau County, Missouri. This Consent Decree contains Site activity and use limitations. In particular, this Consent Decree contains a Declaration of Covenants and Restrictions that:

- prohibits residential or agricultural use of the Site
- prohibits Site use for educational, recreational, day care, or rehabilitative use
- prohibits the installation or use of wells for drinking or irrigation water uses
- provides the U.S. with access to the Site
- requires that written notification be provided to EPA prior to any conveyance of the Site
- requires that any instrument of conveyance for the Site contains notification of the requirements of the Consent Decree and the Declaration of Covenants and Restrictions

While this may serve as an effective proprietary control for the Site, additional proprietary controls may be appropriate for the Site as well as for other areas where contaminants have migrated which are not subject to existing controls. It is expected that restrictive covenant or easement will be required for these areas. This instrument will be patterned on either the: 1) Model Restrictive Covenant and Grant of Access found in the MDNR CALM Appendix E, Attachment E1; 2) the proposed Model Declaration of Restrictive Covenant and Grant of Access which is anticipated to be located in the MDNR Long-term Stewardship for Risk-based Corrective Action Sites, Appendix J, Technical Guidance; or 3) other appropriate instruments.

The objectives of imposing additional proprietary controls on the Site are to eliminate or minimize exposures to contamination remaining at the Site and limit the possibility of the spread of contamination. These objectives will be achieved by use of the restrictive covenant or easement as it will: 1) provide notice, 2) limit use, and 3) provide for all required access.

Specifically, the restrictive covenant and easement will achieve this by:

- providing notice to prospective purchasers and occupants that there are contaminants in the groundwater
- ensuring that future owners are aware of engineered controls put into place as part of this remedial action
- prohibiting residential, commercial, and industrial uses, except those uses which will be consistent with the remedial action
- prohibiting or restricting the placement of groundwater wells

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- prohibiting other ground penetrating activities which may result in the creation of a hydraulic conduit between water-bearing zones
- providing access to EPA and the state of Missouri for verifying land use
- prescribing actions that must be taken to install and/or maintain engineered controls (if applicable)
- providing access to EPA and the state of Missouri for sampling and the maintenance of engineered controls

The designation of the plume areas as a "special use" area by MDNR's Division of Environmental Quality may also be sought. A "special use" designation will require rulemaking as provided for in the Well Driller's Act, RSMo 256.606. This designation will restrict the placement of wells in areas of groundwater contamination and help ensure that no exposures are created, and that migration of contamination is not enhanced, by the placement of wells in the plume.

Wellhead treatment systems such as activated carbon or air strippers to remove COCs from the drinking water supply will be provided. These systems could be installed and maintained for any existing potable (drinking) water supply well in the event that one becomes impacted by COCs. New water supply wells installed in areas where extracted groundwater could be reasonably expected to have COC contamination could also have wellhead treatment systems installed.

Groundwater monitoring will entail sampling and laboratory analysis of COC-impacted groundwater from the 14 existing monitoring wells installed in the bedrock. Laboratory analysis will be required for VOCs, SVOCs, and PCBs for the duration of the monitoring. Annual maintenance and repair of the monitoring wells will be a necessary component. Provision will be made for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the RAOs were met or a determination was made that monitoring was no longer necessary.

This alternative relies on ICs, wellhead treatment, and long-term groundwater monitoring to achieve the Site RAOs. The ICs will be established to prohibit or restrict certain Site uses and prohibit the use of untreated contaminated groundwater. The ICs will be supported by wellhead treatment at wells used for drinking water if the wells are impacted by contamination. Monitoring of contaminant movement will be conducted. This alternative is relatively easy to implement and will be protective of human health. Implementation of this alternative will not result in chemical-specific ARAR compliance. It is estimated, based on the results of groundwater modeling, that it will take 30 to 100 years to attain chemical-specific ARARs. Location-specific and action-specific ARARs do not apply to this alternative since no intrusive work is to be performed.

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The cost of this alternative is estimated to be \$2,248,453 (cumulative net present value). This estimate assumes that the response action will take 30 years to achieve RAOs. Other assumptions used for this cost estimate include: an inflation rate of 3.0 percent, an initial discount rate of 5.0 percent (for the first 15 years), a discount rate of 4.0 percent (for years 16 – 30).

9.2 Alluvium Groundwater

9.2.1 AL-1 No Action

This action was retained as required by section 300.430(e)(3)(ii)(6) of the NCP. This action provides a baseline with which to compare other response actions. "No Action" entails no activities to contain or address COCs at the Site, provides no treatment of COCs, and provides no legal or administrative protection of human health or the environment. "No Action" assumes that physical conditions at the Site remain unchanged.

No RAOs would be achieved using this alternative. Since no additional work would be performed, there would be no implementation requirements. Contamination from the Site would remain unchanged. No time would be needed to construct the alternative, and no costs would be associated with implementation of this alternative.

9.2.2 AL-2 Limited Action

This alternative as proposed will include three (3) components: ICs, wellhead treatment, and long-term groundwater monitoring. Information for each component as envisioned is provided.

The ICs for this alternative will be identical to those discussed above for alternative FB-2.

Wellhead treatment systems, such as activated carbon or air strippers, to remove COCs from drinking water supply will be provided. The systems could be installed and maintained for any existing potable (drinking) water supply well in the event that one becomes impacted by COCs. New water supply wells installed in areas where extracted groundwater could reasonably be expected to have COC contamination could also have wellhead treatment systems installed.

Groundwater monitoring will entail sampling and laboratory analysis of COC-impacted groundwater from a number of new and existing monitoring wells installed in the alluvium. The number of wells to be monitored will be determined during the design phase of the response action. The cost estimate for this alternative is based on the assumption that 10 to 12 wells will be monitored. Laboratory analysis for VOCs, SVOCs, and PCBs will be required for the duration of the monitoring. Annual maintenance and repair of the monitoring wells will be necessary. Provision will be made for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the RAOs were met or a determination was made that monitoring was no longer necessary.

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This alternative relies on ICs, wellhead treatment, and long-term groundwater monitoring to achieve the Site RAOs. The ICs will be established to prohibit or restrict certain Site uses and prohibit the use of untreated contaminated groundwater. The ICs will be supported by wellhead treatment at wells used for drinking water if the wells are impacted by contamination.

Monitoring of contaminant movement will be conducted. This alternative is relatively easy to implement and will be protective of human health. Implementation of this alternative would not result in chemical-specific ARAR compliance. It is estimated that it will take up to 30 years to attain chemical-specific ARARs. Location-specific and action-specific ARARs do not apply to this alternative since no intrusive work is to be performed (unless new wells are required).

The cost of this alternative is estimated to be \$1,459,393 (cumulative net present value). This estimate assumes that the response action will take 30 years to achieve RAOs. Other assumptions used for this cost estimate include: an inflation rate of 3.0 percent, an initial discount rate of 5.0 percent (for the first 15 years), and a discount rate of 4.0 percent (for years 16-30).

9.2.3 AL-3 Collection

Alternative AL-3 includes all of the AL-2 measures described above. In addition, this alternative provides for targeted groundwater collection, treatment, and discharge. The objective of this alternative is to create a "capture zone" within the COC-impacted alluvium groundwater that will contain the impacted groundwater plume.

This alternative anticipates removing COCs from the extracted groundwater using carbon adsorption technology. The treated groundwater would be discharged to the Cape Girardeau POTW or to Wetland Creek. Implementation of this alternative would require the performance of additional design studies.

This alternative would achieve Site RAOs through a combination of physical removal of COC-impacted groundwater, ICs, wellhead treatment, and groundwater monitoring. The time required to attain RAOs is not known, but may exceed 30 years. This alternative is expected to eventually be compliant with ARARs that regulate drinking water. Discharge of the treated groundwater, either to the POTW or to the Wetland Creek, is expected to be compliant with MDNR WQS and fulfill substantive requirements of the National Pollutant Discharge Elimination System (NPDES) permit. Remedial activities within the wetland area include construction of wells, trenching for piping, providing power, construction of the treatment system, and temporary improvements needed to facilitate access of heavy equipment. These activities will be designed such that they are compliant with action-specific and location-specific ARARs.

The cost of this alternative is estimated to be \$8,288,101 (cumulative net present value). This estimate assumes that the response action will take 30 years to achieve RAOs. Other assumptions used for this cost estimate include: an inflation rate of 3.0 percent, an initial discount rate of 5.0 percent (for the first 15 years), and a discount rate of 4.0 percent (for years 16-30).

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9.2.4

AL-4 Enhanced Bio-Degradation (EBD)

Alternative AL-4 includes all of the AL-2 measures described above. In addition, this alternative provides for the injection into the alluvium aquifer of an agent to enhance bio-degradation (such as a hydrogen-release compound, HRC®) to achieve Site RAOs. Injection of HRC®, or some other form of EBD agent, into the aquifer will stimulate biological activity and accelerate the breakdown of COCs in the alluvial aquifer. The Site RAOs will be achieved through EBD, ICs, wellhead treatment, and groundwater monitoring. The time required to meet RAOs may exceed 30 years. Remedial activities within the wetland area will include construction of injection wells, injection of HRC® or other form of EBD agent, and temporary improvements needed to facilitate injection well construction. These activities will be designed to be compliant with location-specific and action-specific ARARs. This alternative is expected to meet all federal, state, and local ARARs.

The cost of this alternative is estimated to be \$4,815,568 (cumulative net present value). This estimate assumes that the response action will take 30 years to achieve RAOs. Other assumptions used for this cost estimate include: an inflation rate of 3.0 percent, an initial discount rate of 5.0 percent (for the first 15 years), and a discount rate of 4.0 percent (for years 16-30).

9.2.5

AL-5 Monitored Natural Attenuation

Alternative AL-5 includes all of the AL-2 measures described above. In addition, this alternative uses MNA to achieve Site RAOs. Natural attenuation refers to a variety of physical, chemical, and biological mechanisms which act to reduce the mobility, toxicity, and/or mass of COCs in groundwater. The MNA provides for the ongoing monitoring of groundwater to evaluate conditions and verify or confirm that natural processes are working to degrade the contamination and achieve TCLs. The viability of using MNA as an appropriate alluvial groundwater remedy must be established. The Office of Solid Waste and Emergency Response has established criteria to be met for MNA responses. As discussed in Section 1.4 above, EPA expects that through additional groundwater sampling conducted prior to the implementation of a remedial action for the contaminated alluvial groundwater, it can be demonstrated that conditions exist that support the use of MNA to achieve RAOs for this groundwater unit. The MNA involves the collection and assessment of data, performance monitoring, and the evaluation of remedy effectiveness and protectiveness of human health and the environment.

AL-5 is expected to be compliant with ARARs; however, the exact amount of time required to achieve compliance is uncertain. This alternative is easy to implement.

The cost of this alternative is estimated to be \$3,905,536 (cumulative net present value). This estimate assumes that the response action will take 30 years to achieve RAOs. Other assumptions used for this cost estimate include: an inflation rate of 3.0 percent, an initial discount rate of 5.0 percent (for the first 15 years), and a discount rate of 4.0 percent (for years 16-30).

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10.0 Comparative Analysis of Alternatives

The NCP has established nine criteria to be used to evaluate remedial alternatives. Each alternative must be evaluated with regard to these criteria and then compared to each other before a remedy may be selected. These comparisons are provided in tabular form in Tables 5 and 6. The remedy must provide the best balance of trade-offs in this comparative analysis. All of the criteria were used to evaluate the alternatives.

The EPA has determined that the best alternatives to address groundwater contamination at the Site are: 1) for the fractured bedrock contaminated groundwater - FB-2 (Limited Action), and 2) for the contaminated alluvium groundwater - AL-4 (Enhanced Bio-Degradation) *with a contingency* of AL-5 (MNA) if in-situ groundwater conditions capable of sustaining natural attenuation processes are confirmed. Data for this determination will be collected during the remedial design process. The EPA expects that through additional groundwater sampling conducted prior to the implementation of a remedial action for the contaminated alluvium groundwater, it can be demonstrated that conditions exist that support the use of MNA to achieve RAOs for this groundwater unit. If and when that demonstration has been made to EPA and the state's satisfaction, the remedy for this unit will become that described above as AL-5. Until that demonstration has been made, however, AL-4 will be the remedy to be implemented to address contamination in the alluvial aquifer.

The nine criteria identified in the NCP can be divided into three groups: 1) threshold criteria, 2) primary balancing criteria, and 3) modifying criteria. The threshold criteria are: 1) overall protection of human health and the environment, and 2) compliance with ARARs. An alternative must meet both of these criteria to be selected as a remedy. There are, however, circumstances where it is not possible to meet all ARARs; in those situations, an ARAR waiver may be obtained. As provided in section 121(d)(4) of CERCLA, 42 U.S.C. § 9621(d)(4), ARARs may be waived under certain circumstances, including when compliance with an ARAR is technically impracticable from an engineering perspective (the "TT" waiver).

The second category of NCP criteria is the primary balancing criteria. This group consists of five standards by which the response alternative is evaluated. These standards are:

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility, and/or volume through treatment
- Short-term effectiveness
- Implementability
- Cost

The purpose of this group of criteria is to identify the response action which provides the best balance of all five standards.

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The third group of criteria is referred to as the modifying criteria. The two standards for this group are state acceptance and public acceptance of the proposed response actions. These criteria were evaluated using communication received from the state of Missouri and citizens of Cape Girardeau or others impacted by the proposed remedial response actions. Questions, comments, or concerns regarding the proposed alternatives were solicited from the state of Missouri and the public.

The state of Missouri has been informed of and concurs with EPA's selection of remedial actions for the Site.

Community acceptance of the preferred alternatives or preferences for other alternatives was evaluated during the comment period for the Proposed Plan. Notice of the Proposed Plan was published in the *Southeast Missourian*, a daily newspaper of general circulation in southeast Missouri, including the Cape Girardeau area, and a public meeting was held in Cape Girardeau on September 8, 2005. A transcript of this meeting is included in the Administrative Record for the Site. No objections to the preferred alternatives presented in the Proposed Plan were voiced at the public meeting. The public comment period on the Proposed Plan closed on September 19, 2005. No public comments were received.

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Table 5

Comparison of Fractured Bedrock Response Alternatives

Alternative ¹	Threshold Criteria		Evaluation Criteria Balancing Criteria					Modifying Criteria		Evaluation Comments
	Protective of Human Health and the Environment	Complies with ARARs	Long-term effectiveness and permanence	Reduction of toxicity, mobility or volume through treatment	Short-term effectiveness	Ability to Implement	Cost ² (million \$, estimate)	State Acceptance	Community Acceptance	
FB-1	No	No	No	No	Yes	Yes	\$0	No	No	This alternative meets neither of the threshold criteria given this alternative.
FB-2	Yes	No	Yes	No	Yes	Yes	2.2	Yes	Yes	<p>This alternative provides for overall protection of the environment with ICs. The second threshold cannot be met. Due to the highly complex nature of attaining ARARs through containment, capping, and other technologies would be extremely uncertain. Due to technical impracticability (TI) is appropriate for contamination and site characteristics. This alternative provides for overall protection of the environment with ICs. The toxicity, mobility, and volume of the fractured bedrock will not be reduced by this alternative. Short-term risks associated with this alternative should present no problems. The estimated cost is \$2,248,543.</p> <p>This alternative is the preferred remedial alternative for fractured bedrock.</p>

Notes:¹ FB-1 No Action² FB-2 This alternative as proposed would include four (4) components: IT waiver for chemical-specific ARARs, Institutional Controls (ICs), and term groundwater monitoring.³ The estimated costs were calculated assuming a 30-year term, an inflation rate of 3.0%, an initial discount rate of 5.0%, and a discount rate of 3.0%.

Table 6

Comparison of Alluvium Response Alternatives

Alternative ¹	Threshold Criteria		Evaluation Criteria Balancing Criteria					Modifying Criteria		Evaluation Comments
	Protective of Human Health and the Environment	Complies with ARARs	Long-term effectiveness and permanence	Reduction of toxicity, mobility or volume	Short-term effectiveness	Ability to Implement	Cost ² (million \$)	State Acceptance	Community Acceptance	
AL-1	No	No	No	No	Yes	Yes	\$0	No	No	This alternative meets neither of the threshold criteria. No further action.
AL-2	Yes	No	No	No	Yes	Yes	1.5	No	No	This alternative will not comply with ARARs. No further action.
AL-3	Yes	Yes	Yes	Yes	Yes	Yes	8.3	No	No	AL-3 satisfies the threshold criteria. It is the most expensive alternative. Active pumping to capture the contaminant plume could mobilize bedrock; if this occurs, an increase in the volume of contamination could occur. There could be some risks to the workers installing the capture system.
AL-4	Yes	Yes	Yes	Yes	Yes	Yes	4.8	Yes	Yes	AL-4 satisfies the threshold criteria. It is the second most expensive alternative. It provides for long-term effectiveness, reduction of toxicity, and minimal short-term risks and is relatively easy to implement. AL-4 is the preferred remedial alternative for groundwater contamination. Ongoing groundwater monitoring indicates that degradation of the plume is occurring. The addition of EBD agents, then the preferred alternative.
AL-5	Yes	Yes	Yes	Yes	Yes	Yes	3.9	Yes	Yes	AL-5 satisfies threshold criteria. It is less expensive than AL-4. It provides for long-term effectiveness, reduction of toxicity, mobility, or volume through natural attenuation. It has minimal short-term risks and is easy to implement. This alternative is the alternate preferred response action.

Notes:¹ AL-1 No Action

AL-2 This alternative includes three (3) components: ICs, wellhead treatment, and long-term groundwater monitoring.

AL-3 This alternative includes all actions proposed for AL-2 plus targeted groundwater collection, treatment, and discharge.

AL-4 This alternative includes all actions proposed for AL-2 plus the EBD injection to enhance COC bio-degradation.

AL-5 This alternative includes all actions proposed for AL-2 plus monitoring of natural attenuation processes degrading COCs.

² The estimated costs were calculated assuming a 30-year term, an inflation rate of 3.0%, an initial discount rate of 5.0%, and a discount rate of 3.0%.

10.1 Fractured Bedrock

10.1.1 Overall Protection of Human Health and the Environment

Alternative FB-1 is not protective of human health and the environment because the exposure pathways to contaminated groundwater would not be addressed. Alternative FB-1 would not restrict or regulate groundwater use. Alternative FB-2 is protective of human health and the environment. This alternative achieves protectiveness by limiting exposure to contaminated groundwater. Exposure restrictions will be accomplished by ICs and wellhead treatment.

10.1.2 Compliance with ARARs

Alternatives FB-1 and FB-2 have no components that would result in the active remediation of groundwater contamination. They will not be compliant with chemical-specific ARARs since no actions are being taken. Location-specific and action-specific ARARs are not relevant as no intrusive remedial activities are proposed (no new wells are envisioned).

A TI waiver is appropriate for the fractured bedrock groundwater unit. This TI waiver is necessary due to the complexity of the fractured bedrock. Attempts were made during the groundwater RI to install monitoring wells at locations which would intercept fractures transporting COCs. Generally, these attempts were unsuccessful. Examination of bedrock exposures (road cuts, naturally occurring outcrops, and quarry walls) provided data for computer models of the fractured bedrock subsurface. These computer models allowed the prediction, with some accuracy, of the number of vertical fractures within a given area. However, the models were unable to precisely locate the majority of the fractures. The efficacy of the active remedial actions is questionable given the complex nature of groundwater flow in the fractures and solution features. The June 2005 report, "Fractured Bedrock Groundwater Technical Impracticability Evaluation Report" describes in detail why active remediation of the fractured bedrock groundwater is not a viable alternative.

10.1.3 Long-Term Effectiveness and Permanence

The COCs will not be reduced with either Alternative FB-1 or FB-2. The risks posed by COCs in the fractured bedrock groundwater will remain for an unknown period of time. Risks posed by the contaminated groundwater will be managed with FB-2 through ICs and wellhead treatment. Protectiveness under FB-2 will be ensured by the indefinite imposition of ICs. Alternative FB-1 does not meet this criterion; however, Alternative FB-2 does satisfy this requirement.

10.1.4 Reduction of Toxicity, Mobility, and/or Volume through Treatment

No reduction of toxicity, mobility, or volume will be achieved with either Alternative FB-1 or FB-2. Accordingly, these alternatives do not satisfy this criterion.

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10.1.5 Short-Term Effectiveness

Alternative FB-1 creates no short-term impacts to human health or the environment. Minimal short-term exposure to workers, the public, and the environment may occur during the implementation of Alternative FB-2. Human exposure to COCs is minimized under FB-2 with the required safety precautions for those workers responsible for the long-term groundwater monitoring.

10.1.6 Implementability

Alternative FB-1 is the easiest to implement since no action is being taken. Alternative FB-2 can be readily implemented since monitoring wells needed for long-term monitoring are already in place. No additional above-ground treatment components are anticipated (beyond wellhead treatment, if necessary).

10.1.7 Cost

Alternative FB-1 has no costs. Alternative FB-2 has a projected cumulative net present value, for a 30-year period, of \$2,248,543 (within an accuracy of +50 percent to -30 percent).

ESTIMATED COSTS TO IMPLEMENT FRACTURED BEDROCK REMEDIAL ALTERNATIVES

Criteria		Fractured Bedrock Remedial Alternatives	
		Alternative FB-1: No Action	Alternative FB-2: Limited Action ¹
Capital Cost		\$0	\$0
Annual	2 nd year	\$0	\$155,719
O&M Cost	4 th year	\$0	\$74,074
Total Periodic Cost		\$0	\$24,778
Total Net Present Value		\$0	\$2,248,453

¹ Estimated costs are accurate to -30% to +50%

Notes:

- 1) "Capital Costs" refers to costs associated with alternative design, construction, installation and start-up. All capital costs are assumed to occur in year zero for discounting purposes.
- 2) "Annual Operation & Maintenance (O&M) Costs" are for routine operation, maintenance and monitoring of the alternative, and include costs for such items as groundwater well monitoring, remedial system operation and maintenance, removal/disposal of treatment residuals, and ongoing project management and technical support.
- 3) "Total Net Periodic Costs" are the cumulative net present value costs (with an inflation rate of 3.0 percent and an annual discount rate of 5.0 percent for the first 15 years then 4.0 percent thereafter) which occur during the course of an alternative operation which are not routine annual O&M costs, such as five-year reviews.
- 4) "Total Present Value" is the total alternative costs (including Capital, O&M, and Periodic Costs) with an applied annual discount rate of 5.0 percent and an inflation rate of 3.0 percent.
- 5) Costs are presented as FS level estimates (the period of system operation and final budget costs are subject to design and subsequent detailed cost review).

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10.1.8 State Acceptance

The state of Missouri concurs with the selection of FB-2 for the fractured bedrock groundwater.

10.1.9 Community Acceptance

No comments were received opposing the selected remedy, FB-2, for the fractured bedrock groundwater.

10.2 Alluvium

Alternatives AL-1, AL-2, and AL-5 propose no, or only limited, actions above those already being conducted. These alternatives include no active Site remediation component (beyond wellhead treatment) and varying degrees of monitoring and ICs. Alternatives AL-3 and AL-4 include all the measures identified for Alternative AL-2 plus active remediation components. Extraction, treatment, and discharge of COC-contaminated groundwater are also included in AL-3. Alternative AL-4 includes an enhanced bio-degradation agent to accelerate breakdown of the COCs. Table 6 summarizes the comparative analysis of AL alternatives.

10.2.1 Overall Protection of Human Health and the Environment

Alternative AL-1 is not protective of human health or the environment since exposure to contaminated groundwater would still be possible (an open exposure pathway). Alternatives AL-2, AL-3, AL-4, and AL-5 are each protective of human health and the environment. Each of these alternatives provides for the imposition of ICs and regulation or restriction on groundwater use. Alternatives AL-3 and AL-4 provide for control of COC migration at target locations within the alluvium.

10.2.2 Compliance with ARARS

Alternatives AL-1 and AL-2 do not actively address groundwater contamination. These alternatives are not compliant with chemical-specific ARARs and do not meet this threshold criteria. Location-specific and action-specific ARARs are not applicable since no response action will occur.

Alternatives AL-3, AL-4, and AL-5 are all expected to comply with chemical-specific ARARs. The time required to achieve compliance is not known; but for purposes of this ROD, the duration is estimated to be at least 30 years. Location-specific and action-specific ARARs could apply to these response actions. Design criteria for these alternatives will be such that compliance with location-specific and action-specific ARARs is achieved.

10.2.3 Long-Term Effectiveness and Permanence

Reduction of the contaminant concentrations is not attained with either Alternative AL-1 or AL-2. Residual risks for COCs in groundwater will remain for an unknown period. The risk from the contaminated groundwater is managed with Alternative AL-2 through ICs and wellhead

treatment, although the ICs will be required for an indefinite period to ensure protectiveness. Long-term protectiveness is not attained with Alternative AL-1; however, Alternative AL-2 satisfies this criterion.

Reduction of the contaminant concentrations is expected to occur to varying degrees with Alternatives AL-3, AL-4, and AL-5. Alternative AL-3 achieves COC reduction by creating a capture zone that encompasses the COC-impacted alluvial groundwater; this action may induce an acceleration of the COC migration from the bedrock to the alluvium. Alternative AL-4 achieves COC reduction by the addition of an EBD agent. The EBD agent, functioning as anticipated, will speed up the degradation of the COC mass. Alternative AL-5 achieves COC reduction by relying on naturally occurring chemical actions. Alternatives AL-3, AL-4, and AL-5 each meet this criterion.

10.2.4 Reduction of Toxicity, Mobility, and/or Volume Through Treatment

Reduction of the toxicity, mobility, or volume of COCs is not achieved under either Alternative AL-1 or AL-2. Alternative AL-3 uses physical processes to remove COCs from the alluvial groundwater to reduce concentrations to TCLs. It also has the potential to reduce the volume of COCs and their toxicity. However, the removal of large volumes of groundwater from the alluvium by aggressive pumping could increase groundwater flow from the upgradient fractured bedrock resulting in the increased migration of contamination from the fractured bedrock into the alluvium. Reductive dehalogenation processes are used in both Alternative AL-4 and AL-5 to reduce the mass of COCs in groundwater and achieve TCLs. The effectiveness of AL-4 and AL-5 depends on the suitability of the Site's geochemical and biological conditions for biodegradation of chlorinated solvents. Alternatives AL-3, AL-4, and AL-5 meet this criterion.

10.2.5 Short-Term Effectiveness

No short-term impacts to human health are created by Alternative AL-1 because no action is performed. Minimal short-term impacts to workers, the public, and the environment are anticipated during the implementation of Alternatives AL-2 and AL-5. Human exposures to COCs under these alternatives result from long-term groundwater monitoring activities.

Alternative AL-3 is anticipated to pose the greatest short-term impact to workers, the public, and the environment during implementation. Installation of extraction wells could result in exposure to contaminated soil cuttings and liquids. This alternative has above-ground treatment components which will require construction and operation. There is a potential for direct contact with COCs during carbon change-out and sampling activities.

Alternative AL-4 may result in short-term impacts to workers, the public, and the environment. These impacts could be caused by worker exposure to chemicals during drilling operations, working with groundwater above ground, and EBD injection.

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10.2.6 Implementability

Alternatives AL-1, AL-2, and AL-5 are all easy to implement. Alternative AL-1 will be the easiest to implement since no action will be performed.

Implementation of Alternative AL-3 may require additional field work to determine the location of extraction wells, installation of the extraction wells, construction and operation of the treatment components, and discharge of the treated groundwater. This alternative is considered to be the most difficult to implement.

Alternative AL-4 implementation will likely require additional work to determine the location of injection wells. Once the wells are installed, the EBD agent will need to be routinely injected into the groundwater. This alternative will be relatively easy to implement.

10.2.7 Cost

Alternative AL-1 has no costs associated with its implementation, as no action is being performed. Costs for the remaining alluvium alternatives ranked from lowest to highest are:

- AL-2 \$1,459,393
- AL-5 \$3,905,536
- AL-4 \$4,815,568
- AL-3 \$8,288,101

ESTIMATED COSTS TO IMPLEMENT ALLUVIUM REMEDIAL ALTERNATIVES

Criteria		Alluvium Remedial Alternatives				
		Alternative AL-1: No Action	Alternative AL-2: Limited Action ¹	Alternative AL-3: Groundwater Extraction, Treatment and Discharge ¹	Alternative AL-4: Enhanced Biodegradation by HRC Injection ¹	Alternative AL-5: Monitored Natural Attenuation ¹
Capital Cost		\$0	\$0	\$485,692	\$0	\$0
Annual O&M Cost	2 nd year	\$0	\$97,324	\$412,165	\$327,174	\$278,347
	4 th year	\$0	\$46,922	\$272,259	\$121,995	\$134,196
Total Periodic Cost		\$0	\$24,778	\$24,778	\$24,778	\$24,778
Total Net Present Value		\$0	\$1,459,393	\$8,288,101	\$4,815,568	\$3,905,536

¹ Estimated costs accurate to -30 percent to +50 percent

Notes:

- 1) "Capital Costs" refers to costs associated with alternative design, construction, installation and start-up. All capital costs are assumed to occur in year zero for discounting purposes.
- 2) "Annual O&M Costs" are for routine operation, maintenance and monitoring of alternative, and include costs for such items as groundwater well monitoring, remedial system O&M, removal/disposal of treatment residuals, and ongoing project management and technical support.

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3) "Total Net Periodic Costs" are the cumulative net present value costs (with an inflation rate of 3.0 percent and an annual discount rate of 5.0 percent for the first 15 years then 4.0 percent thereafter) which occur during the course of an alternative operation which are not routine annual O&M costs, such as five-year reviews.

4) "Total Present Value" is the total alternative costs (including Capital, O&M, and Periodic Costs) with an applied discount rate of 5.0 percent and an inflation rate of 3.0 percent.

5) Costs are presented as FS level estimates (the period of system operation and final budget costs are subject to design and subsequent detailed cost review).

10.2.8 State Acceptance

The state of Missouri concurs with the selection of AL-4 as the primary remedy for addressing contaminated groundwater in the alluvium, and in the selection of AL-5 as the contingent remedy should conditions exist in the alluvial groundwater that result in natural degradation of the COCs.

10.1.9 Community Acceptance

No comments were received opposing the selected remedy, AL-4 with the contingency of AL-5, for groundwater in the alluvium.

11.0 Principal Threat Waste

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by a site whenever practicable (NCP §300.430(a)(1)(iii)(A)). Identifying principal threat wastes combines concepts of both hazard and risk. In general, principal threat wastes are those source materials considered to be highly toxic or highly mobile which typically cannot be contained in a reliable manner or would present a significant risk to human health or the environment should exposure occur.

Principal threat wastes, PCB-contaminated soils, at the Site have been addressed. PCB-contaminated soils were excavated and thermally treated during the Soil Remedial Action. This treatment satisfies the statutory preference for treatment of principal threat wastes.

12.0 Selected Remedy

Two groundwater regimes have been impacted by contamination from the Site. The impacted groundwater is in the fractured bedrock in the upland area and in the alluvium in the wetland area. A remedy has been identified for each groundwater regime.

12.1 Fractured Bedrock

Remedial action FB-2 as proposed will include four (4) components: TI waiver for chemical-specific ARARs, ICs, wellhead treatment, and long-term groundwater monitoring. The TI waiver is needed due to the highly variable and fractured nature of the bedrock in the upland area of the site. As anticipated, the ICs will be implemented or imposed as appropriate to prevent exposure to the contaminated groundwater. The primary IC is expected to be proprietary in nature, i.e., a restrictive covenant and grant of access. Other ICs that might be used include the designation of the area of groundwater contamination as a "special use" area by MDNR's

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Division of Environmental Quality, the use of ordinances, inspection regimes, property notices, and/or public information.

Wellhead treatment systems, such as activated carbon or air strippers, to remove COCs from the drinking water supply will be provided. The systems could be installed and maintained for any existing potable (drinking) water supply well in the event that one becomes impacted by COCs. New water supply wells installed in areas where extracted groundwater could be reasonably expected to have COC contamination could also have wellhead treatment systems installed.

Monitoring of groundwater will be performed. This will be accomplished by obtaining groundwater samples from bedrock wells and performing laboratory analysis on the samples for COCs. Laboratory analysis for the duration of the monitoring is expected to include VOCs, SVOCs, and PCBs. Annual maintenance and repair of the monitoring wells will be required. Provision will be made for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the RAOs were met or a determination was made that monitoring was no longer necessary.

Remedial action FB-2 provides for overall protection of human health and the environment with ICs. However, FB-2 does not meet the second threshold requirement of attaining ARARs. Due to the highly complex and variable bedrock conditions, attainment of ARARs through containment, collection, treatment, or other technologies would be extremely uncertain and costly. A TI waiver for attainment of chemical-specific ARARs is appropriate for remedial action FB-2.

Remedial action FB-2 provides for long-term effectiveness. The toxicity, mobility, and volume of the COCs in the fractured bedrock will not be reduced by this technology. There are no short-term risks associated with this remedial action. Implementation of this remedial action should present no problems.

12.2 Alluvium

Remedial action AL-4 (Enhanced Bio-Degradation) as proposed will consist of four (4) components. These components include ICs, wellhead treatment, long-term groundwater monitoring, and injection of EBD agents into the alluvial groundwater. For cost estimate purposes, the EBD agent was injected only once. Given the fact that contaminated groundwater from the bedrock is exiting into the alluvium, multiple injections of the EBD agent will likely be required.

As anticipated, the ICs will be implemented or imposed as appropriate to prevent exposure to the contaminated alluvial groundwater. The primary IC is expected to be proprietary in nature, i.e., a restrictive covenant and grant of access. Other ICs that might be used include the designation of the area of groundwater contamination as a "special use" area by MDNR's Division of Environmental Quality, the use of ordinances, inspection regimes, property notices, and/or public information.

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Wellhead treatment systems, such as activated carbon or air strippers, to remove COCs from groundwater to be used for a drinking water supply will be provided. The systems could be installed and maintained for any existing potable (drinking) water supply well in the event that one becomes impacted by COCs. New water supply wells installed in areas where extracted groundwater could be reasonably expected to have COC contamination could also have wellhead treatment systems installed.

Monitoring of groundwater will be performed. This will be accomplished by obtaining groundwater samples from existing and new alluvial wells. The groundwater samples will be analyzed in the laboratory for COCs. Annual maintenance and repair of the monitoring wells will be a necessary component. Provision will be made for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the RAOs were met or a determination was made that monitoring was no longer necessary.

Agents to accelerate natural biological processes that degrade or break-down COCs will be injected into the alluvial groundwater. Installation of injection wells will be required. Periodic handling of the EBD agent will also be required. Multiple injections may be required as contaminated bedrock groundwater is flowing into the alluvium.

Remedial action AL-4 meets both threshold criteria: it provides for the overall protection of human health and the environment, and complies with ARARs. This remedial action also provides for long-term effectiveness in the alluvial groundwater. The toxicity, mobility, and volume of the COCs in the alluvium will be reduced by the application of this remedial action. Minimal short-term risks associated with injection well installation and EBD injection are possible. Implementation of this remedial action should present no problems. The costs associated with remedial action AL-4 are nearly five (5) million dollars.

Contingent Alluvium Technology

There is very little difference between Alternatives AL-4 and AL-5. Both remedial alternatives rely on degradation of the COCs in the alluvial groundwater to achieve RAOs. The primary difference between AL-4 and AL-5 is that Alternative AL-4 requires the injection of an agent into the groundwater to accomplish COC degradation. The achievement of RAOs for Alternative AL-5 relies on naturally occurring processes and chemicals found in the alluvial groundwater. Quarterly groundwater monitoring continues to be conducted. During June 2005, the analyses performed on alluvial groundwater samples were expanded to include parameters that are used to determine whether or not degradation of chemicals is naturally occurring. It is anticipated that these parameters will continue to be evaluated for at least one year. Evaluation of the data will be performed to determine whether or not the alluvial groundwater can support natural attenuation. If that determination is made, injection of compounds into the groundwater will not be required to attain RAOs. Implementation of AL-5 will cost about one (1) million dollars less than AL-4.

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13.0 Statutory Determinations

This section provides a brief description of how the selected remedies satisfy the statutory requirements of section §121 of CRCLA (as required by the NCP §300.430(f)(5)(ii)) and explain the five-year review requirements. The determinations for each selected remedy will be discussed separately.

13.1 Fractured Bedrock

13.1.1 Protection of Human Health and the Environment

The Fractured Bedrock Selected Remedy, Limited Action FB-2, is protective of human health and the environment. This remedy achieves protectiveness with ICs and long-term monitoring. The remedy provides for well-head treatment should a supply well (drinking water or industrial process) be installed. Human exposures to contaminated groundwater will be controlled.

The current cancer risks associated with human consumption of the contaminated groundwater are 1×10^{-3} , given the chlorobenzene concentrations. Should unfiltered groundwater be used for human consumption the cancer risks from ingestion of PCBs is estimated to be 5×10^{-2} .

13.1.2 Compliance with Applicable or Relevant and Appropriate Requirements

The Selected Remedy, FB-2, does not comply with chemical-specific ARARs. The bedrock conditions are highly complex and variable in the upland area. Attainment of ARARs through containment, collection, treatment, or other technologies would be extremely uncertain. A waiver for chemical-specific ARAR attainment due to technical impracticability considerations is a component of the selected remedial action.

Compliance with action-specific ARARs will be achieved. These ARARs will be of interest should any wells be installed in the fractured bedrock. As described, the selected remedy will provide for well-head treatment for any wells installed in the impacted fractured bedrock. Action-specific ARARs include the following.

- SWDA - §1412(b)(4)(E)(ii), which regulates the design, management, and operation of POU or POE treatment units used to achieve compliance with MCLs.
- SDWA, criteria and procedures for public water systems using POE devices (40 CFR §141.100) which establishes criteria and procedures for Public Water Systems using POE devices.
- SDWA, variances and exemptions from MCLs for organic and inorganic chemicals (40 CFR §142.60), which identifies technologies and treatment techniques available to achieve compliance with MCLs.

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13.1.3 Cost Effectiveness

The EPA has determined that the Fractured Bedrock Selected Remedy is cost effective and represents a reasonable value for the money to be spent. In making this determination, the following definition of cost effectiveness was applied: "[a] remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (NCP § 300.430(f)(1)(ii)(D)). The EPA has determined that the costs associated with FB-2 are proportional to its overall effectiveness. This determination is based by evaluating the overall "effectiveness" of the alternatives that satisfied the threshold criteria. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; and short-term effectiveness). The highly variable and complex nature of the fractured bedrock made consideration of any action other than the selected remedy impracticable due to difficulty, if not impossibility, of successfully extracting contamination from this highly fractured bedrock, as well as the very real likelihood of exacerbating the extent of contamination by mobilizing contamination into the downgradient alluvium. The relationship of the overall effectiveness of this remedial action is proportional to its costs and hence this remedial action represents a reasonable value for the money to be spent. The estimated present worth of the selected remedy is \$2,248,453.

13.1.4 Utilization of Permanent Solutions and Alternative Treatment Technologies

The EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used in a practicable manner at the Site. The EPA has determined that the selected remedy provides the best balance of trade-offs in terms of the five balancing criteria and considering state and community acceptance.

It is EPA's opinion that the source materials for the Site groundwater contamination were permanently destroyed by thermal desorption during the remedial action addressing soil contamination. Deep residual contamination within the fractured bedrock cannot be effectively or practically addressed with any technologies currently available.

13.1.5 Preference for Treatment as a Principal Element

Principal threats were addressed during the remedial action for the contaminated soils. By utilizing treatment as the significant portion of the soils OU, the statutory preference for remedies that employ treatment as a principal element is satisfied. Additionally, the highly complex and variable bedrock makes active treatment of the contaminated groundwater technically impracticable.

13.1.6 Five-Year Review Requirements

Because the remedial action for OU 1, as well as this OU, resulted in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted on or before September 24, 2009 (five years after the first five-year review for the Site). Five-year reviews are conducted to ensure that the remedies are, or continue to be, protective of human health and the environment.

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13.2 Alluvium

13.2.1 Protection of Human Health and the Environment

The selected remedy for the alluvium, AL-4, or the contingent remedy, AL-5, are both protective of human health and the environment. AL-4 achieves its protectiveness by in-situ destruction of the COCs, with institutional controls and long-term monitoring. This remedy provides for well-head treatment should a supply well (drinking water or industrial process) be installed. Human exposures to contaminated groundwater will be controlled.

The current cancer risks associated with human consumption of the contaminated groundwater are 4×10^{-3} for an adult living in the wetland area and 7×10^{-3} for a child resident. The HI for a construction worker, working in a subsurface trench and in contact with contaminated groundwater, is 2. The HI for residents, adult and child, is 53 and 123, respectively.

13.2.2 Compliance with Applicable or Relevant and Appropriate Requirements

Both the selected remedy, AL-4, and the contingent remedy, AL-5, comply with ARARs. Compliance with action-specific ARARs will be achieved. As described, the selected remedy and the contingent remedy provide for well-head treatment for any wells installed in the downgradient wetland area. The ARARs are presented below and in more detail in Appendix B.

- SDWA – MCLs (40 CFR §141.11 – 141.14). Revised MCLs (40 CFR §141.61 – 141.62) and non-zero MCLGs (40 CFR §141.60 – 141.51). MCLs have been promulgated for a number of common organic and inorganic contaminants in drinking water supply systems.
- NAWQC (33 U.S.C. §1314(a) and 42 U.S.C. § 9621(D)(2) and WQSs (40 CFR §131.36(b) and 131.38) which have been promulgated to protect human health and aquatic life from contamination in surface water bodies.
- Missouri Water Quality Standards (10 CSR 20-7.031) which identifies beneficial uses of water to the state, criteria to protect those uses and defines the anti-degradation policy.
- Public Drinking Water Program Maximum Volatile Organic Chemical Contaminant Levels and Monitoring Requirements (10 CSR 0-4.100) which regulates concentrations of contaminants in public drinking water supply systems.
- CALM – Appendix B (Tier 1 Soil and Groundwater Cleanup Standards) which establishes conservatively-derived, risk-based GTARC for remediation of voluntary cleanup sites in Missouri.
- Protection of Wetlands (Executive Order 11990, 40 CFR Part 6, Appendix A) which requires federal agencies to minimize the destruction, loss, or degradation of wetlands; preserve and enhance the natural and beneficial value of wetlands; and avoid support of new construction in wetlands if a practicable alternative exists.
- Floodplain Management (Executive Order 11988, 40 CFR 6.302(b) and 40 CFR Part 6, Appendix A) requires federal agencies to evaluate the potential effects of an action they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain.

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- RCRA Floodplain Restriction for Hazardous Facilities (40 CFR 264.18(b)) requires that a hazardous waste facility located in a 100-year floodplain be designed, constructed, operated, and maintained to prevent wash-out of any hazardous waste by a 100-year flood.
- Protection of Lakes and Streams Missouri Water Quality Standards (10 CSR 20-7.03) which protects the quality of lakes and streams.
- SWDA - §1412(b)(4)(E)(ii), which regulates the design, management and operation of POU or POE treatment units used to achieve compliance with a MCL.
- Standards Applicable to Transporters of Hazardous Waste (40 CFR Part 263) establishes standards which apply to persons transporting hazardous wastes, requiring a manifest pursuant to 40 CFR Part 262, within the United States.
- SDWA, criteria and procedures for public water systems using POE devices (40 CFR §141.100) which establishes criteria and procedures for Public Water Systems using POE devices.
- SDWA, variances and exemptions from MCLs for organic and inorganic chemicals (40 CFR §142.60), which identifies technologies and treatment techniques available to achieve compliance with MCLs.

Other criteria, advisories, or guidance exist that are not ARARs that are appropriate to the selected remedy or the contingent remedy. These criteria, advisories or guidance are To Be Considered (TBCs). The TBCs are summarized below. They are presented in greater detail in Appendix B.

- EPA Risk RfDs are levels developed by EPA to evaluate incremental human carcinogenic risk as a result of exposure to carcinogens.
- EPA Human Health Assessment CSFs are tools developed to evaluate incremental human carcinogenic risk from exposure to carcinogens.
- EPA Health Advisories, Human Health Risk Assessment Guidance, and Ecological Risk Assessment Guidance establish criteria and provide guidelines for evaluating human health and ecological risks at CERCLA sites.

13.2.3 Cost Effectiveness

The EPA has determined that the Alluvium Selected Remedy is cost effective and represents a reasonable value for the money to be spent. In making this determination, the following definition of cost effectiveness was applied: "[a] remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (NCP § 300.430(f)(1)(ii)(D)). The EPA has determined that the costs associated with AL-4 are proportional to its overall effectiveness. This determination is based by evaluating the overall "effectiveness" of the alternatives that satisfied the threshold criteria. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, or volume through treatment; and short-term effectiveness). The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence this alternative represents a reasonable value for the money to be spent. The estimated present worth of the selected remedy, AL-4, is \$4,815,568.

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The contingent remedy, AL-5, will be implemented if data indicate that the chemistry of the groundwater will degrade the COCs without addition of any other agent(s). This remedy is cost effective and represents a reasonable value for the money to be spent. This decision was made in accordance with the parameters discussed above. The estimated present worth of the contingent remedy, AL-5, is \$3,905,536.

13.2.4 Utilization of Permanent Solutions and Alternative Treatment Technologies

The EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be used in a practicable manner at the Site. The EPA has determined that the selected remedy or the contingent remedy provides the best balance of trade-offs in terms of the five balancing criteria and considering state and community acceptance.

The EPA's has determined that the source materials for Site groundwater contamination were permanently destroyed by thermal desorption during the remedial action addressing soil contamination. The selected remedy will degrade the COCs in-situ, thereby providing a permanent solution. The contingent remedy will ensure that natural processes are acting to degrade the COCs in-situ, also providing a permanent solution. Both of these remedies will be monitored and evaluated during the long-term monitoring program that is a part of each.

13.2.5 Preference for Treatment as a Principal Element

Principal threats were addressed during the remedial action for the contaminated soils. By utilizing treatment as the significant portion of the soils OU, the statutory preference for remedies that employ treatment as a principal element is satisfied. The selected remedy and contingent remedy both satisfy the preference for treatment. The COCs in the groundwater will be degraded in-situ by either adding agents or relying on natural attenuation processes.

13.2.6 Five-Year Review Requirements

Because the remedial action for OU 1, as well as this OU 2, resulted in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted on or before September 24, 2009 (five years after the first five-year review for the Site). Five-year reviews are conducted to ensure that the remedies are, or continue to be, protective of human health and the environment.

14.0 Documentation of Significant Changes

No significant changes were made to the preferred remedial alternatives as presented in the Proposed Plan for OU 2. The Proposed Plan for OU 2 was made available to the public on August 21, 2005, and discussed during a Public Meeting held in Cape Girardeau, Missouri, on September 8, 2005.

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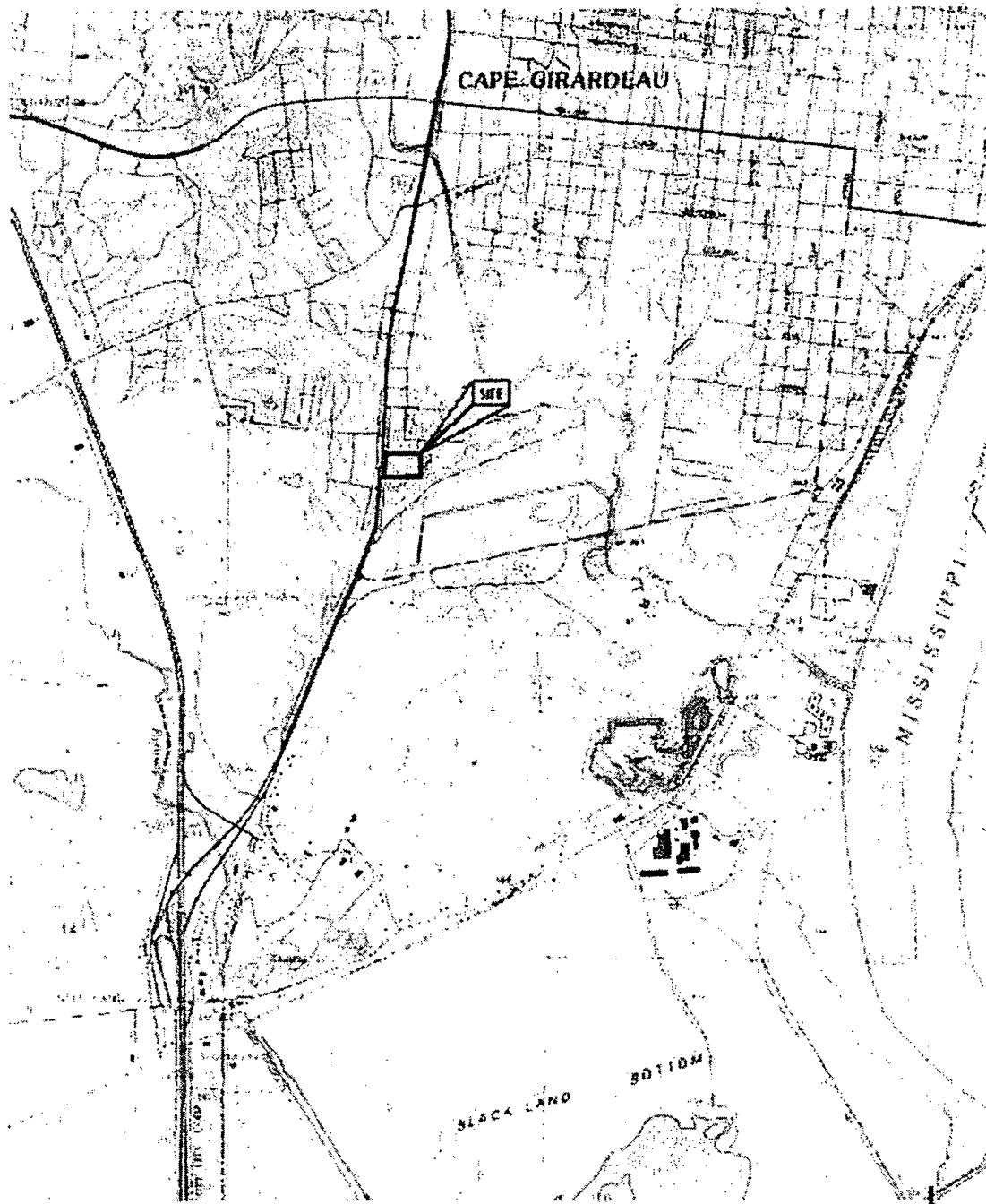
PART III RESPONSIVENESS SUMMARY

No comments on the Proposed Plan for OU 2 were received from the public; the state of Missouri has concurred on the preferred alternatives presented in the Proposed Plan.

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FIGURES

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AR111068



NOTES

- 1) BASE MAP FROM USGS 7.5 MINUTE CAPE GIRARDEAU QUADRANGLE (1965, REVISED 1993).
- 2) ALL LOCATIONS ARE APPROXIMATE.

0 0.5
Approximate Scale in Miles



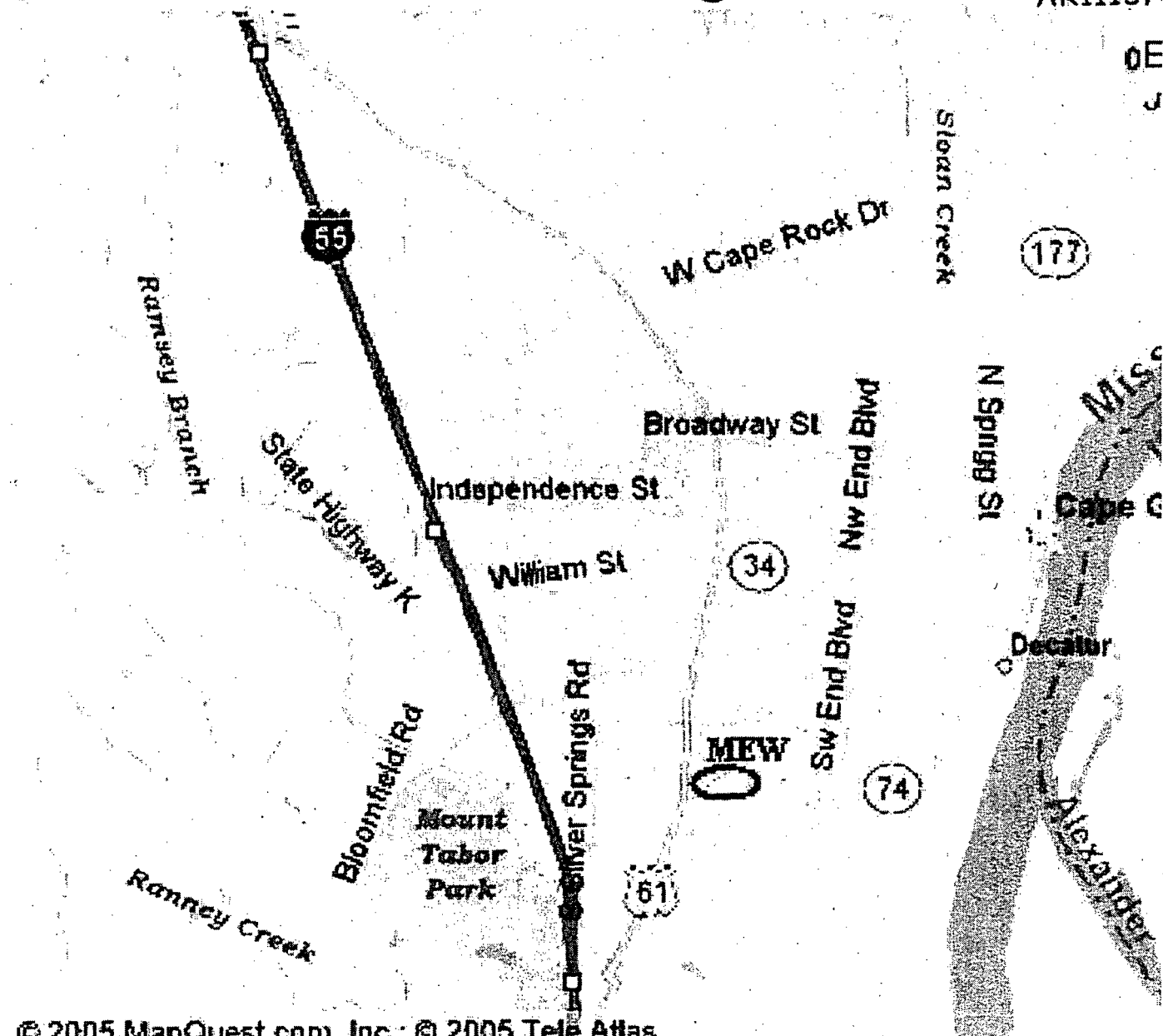
from KOMEX, Remedial
Investigation Report, 2005

MISSOURI ELECTRIC WORKS SITE

Site Location Map

Figure 1

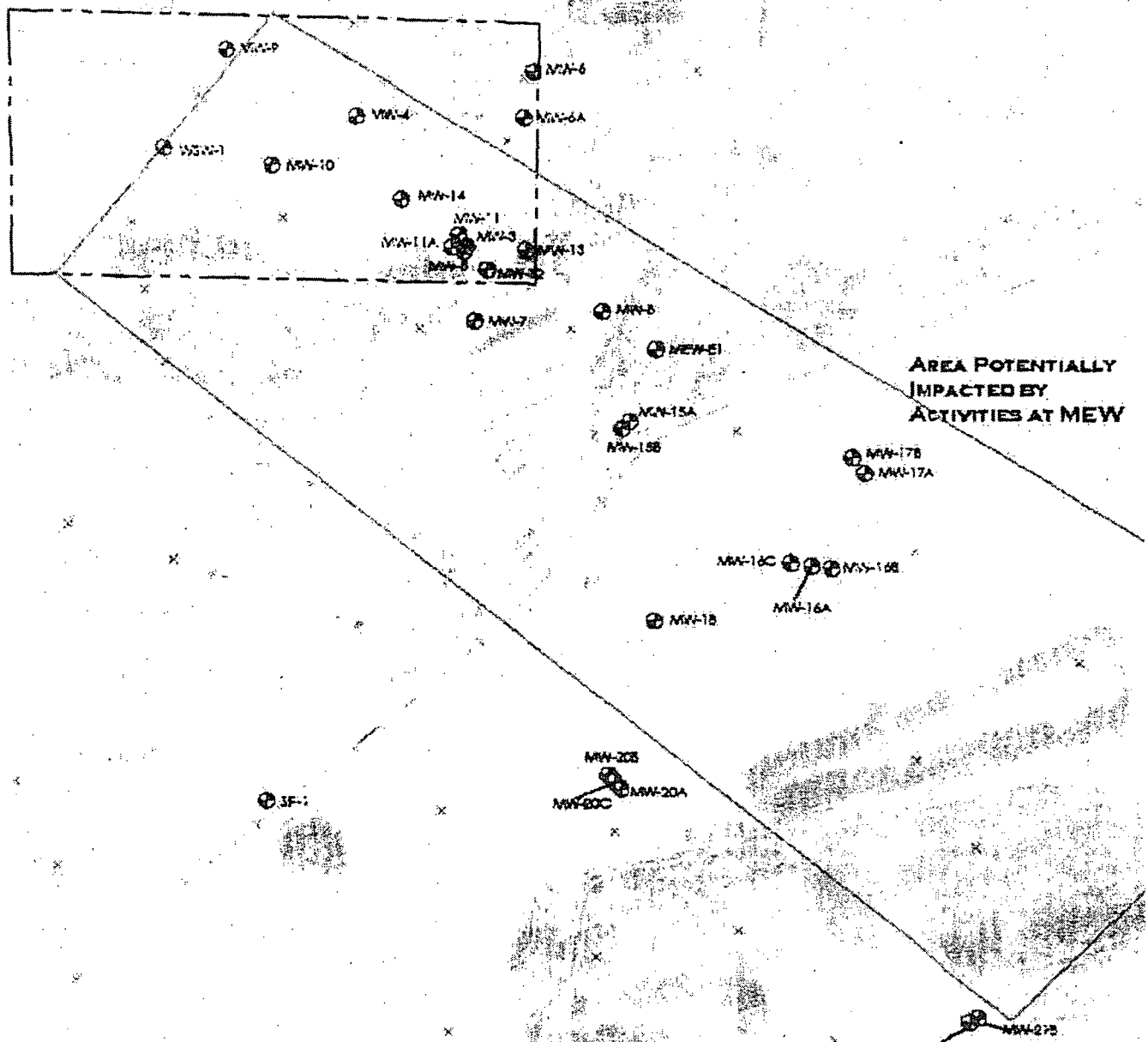
MEW Admin Record
AR111069



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MISSOURI ELECTRIC WORKS SITE
Site Location within City Limits

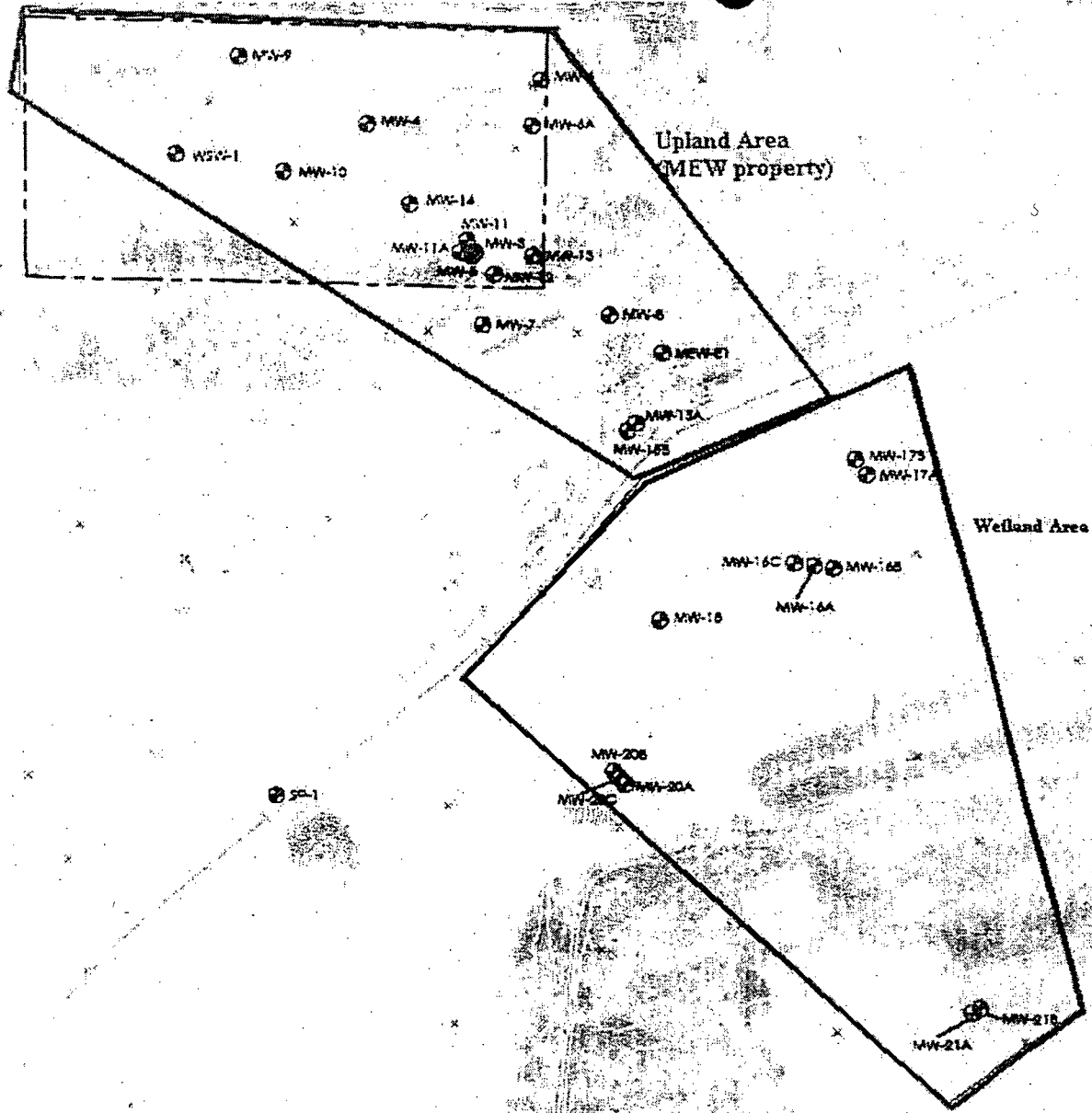
From 2005 MapQuest.com, Inc.



MISSOURI ELECTRIC WORKS SITE

Area Impacted by MEW Activities

from KOMEX, Remedial
Investigation Report, 2005



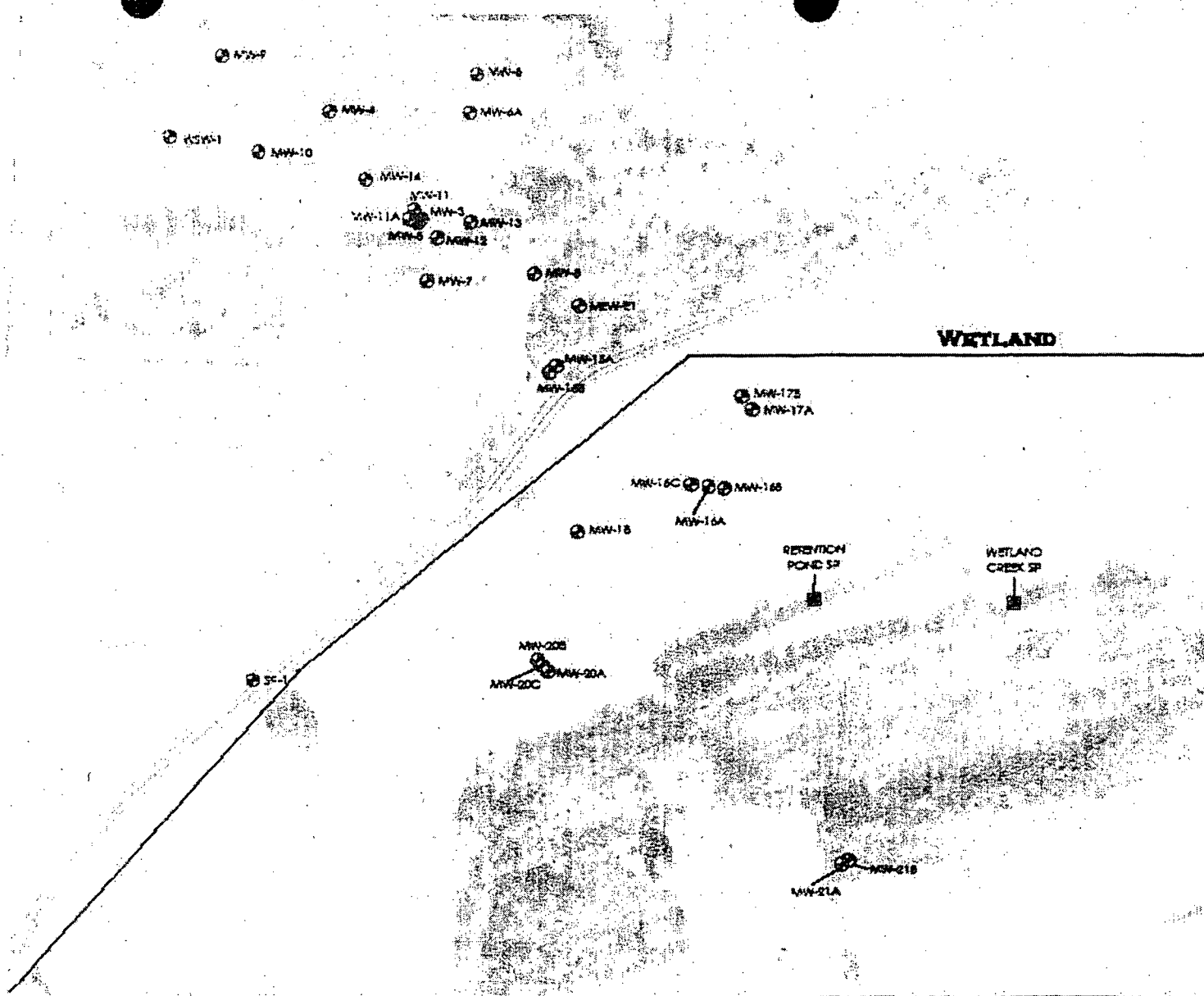
MISSOURI ELECTRIC WORKS SITE

Location of Upland and Wetland Areas

from KOMEX, Remedial
Investigation Report, 2005

**MISSOURI ELECTRIC WORKS SITE****Surface Drainage Pathways from MEW Property**

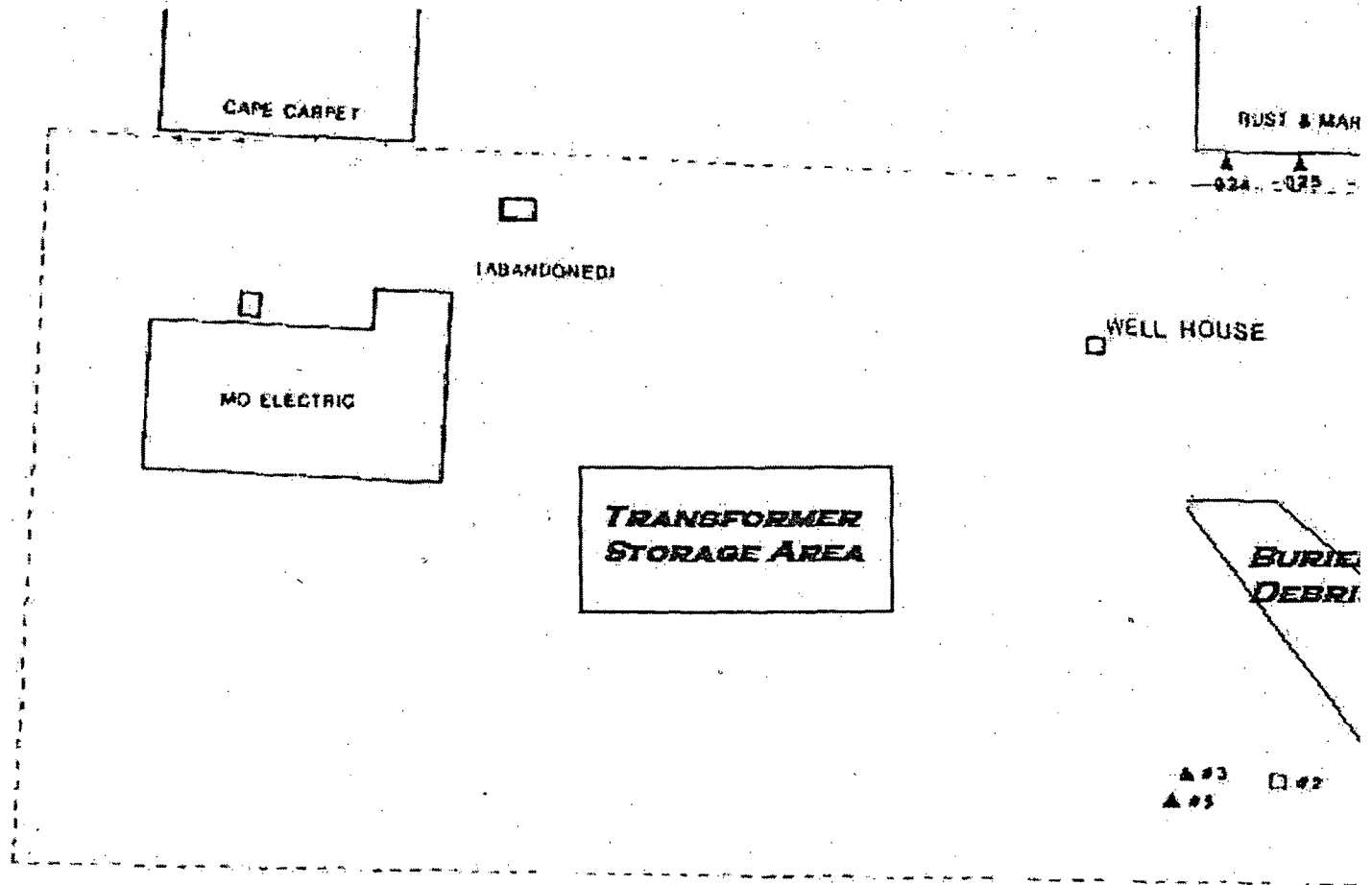
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MISSOURI ELECTRIC WORKS SITE

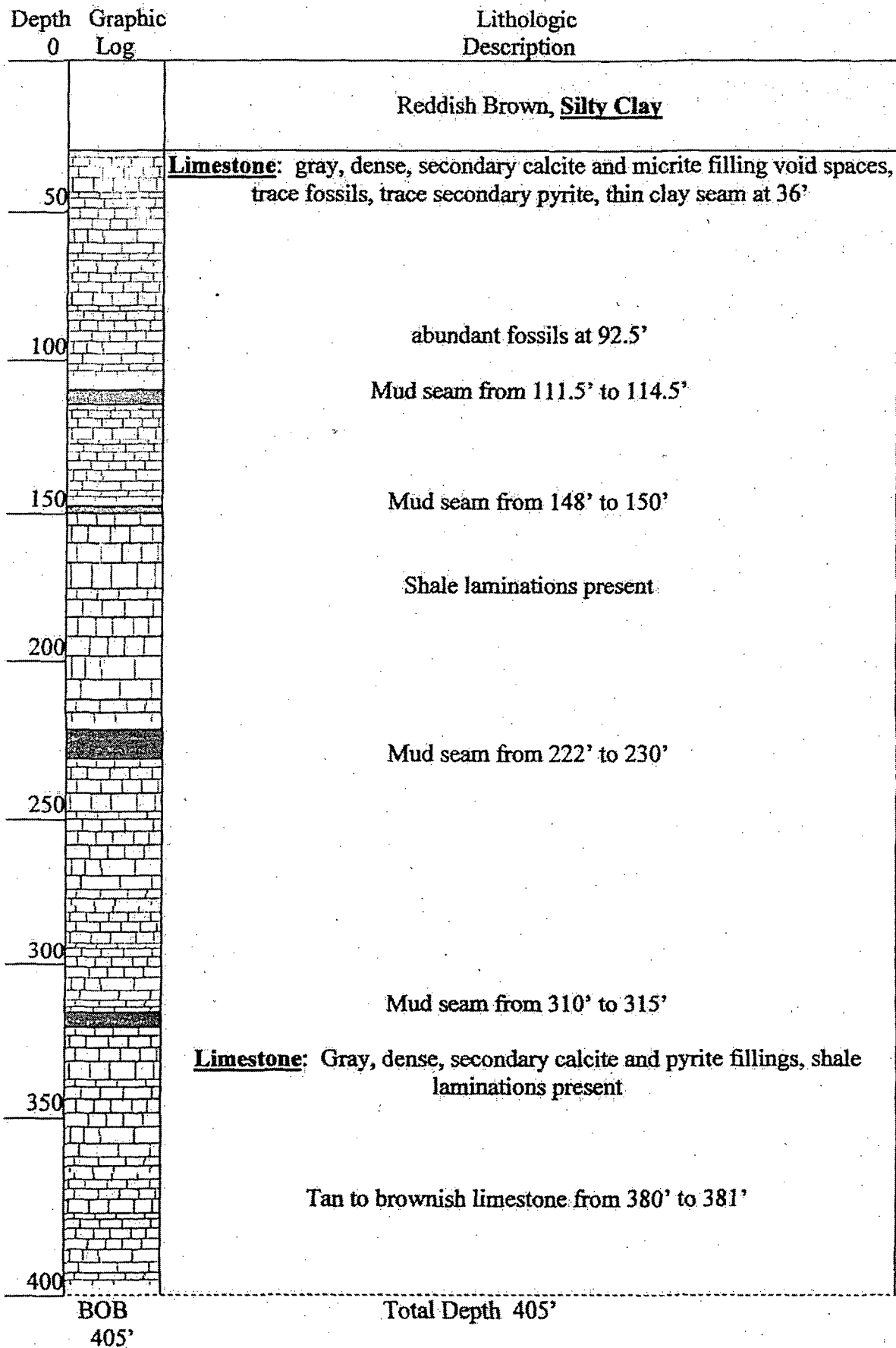
Wetland Location

from KOMEX, Remedial
Investigation Report, 2005

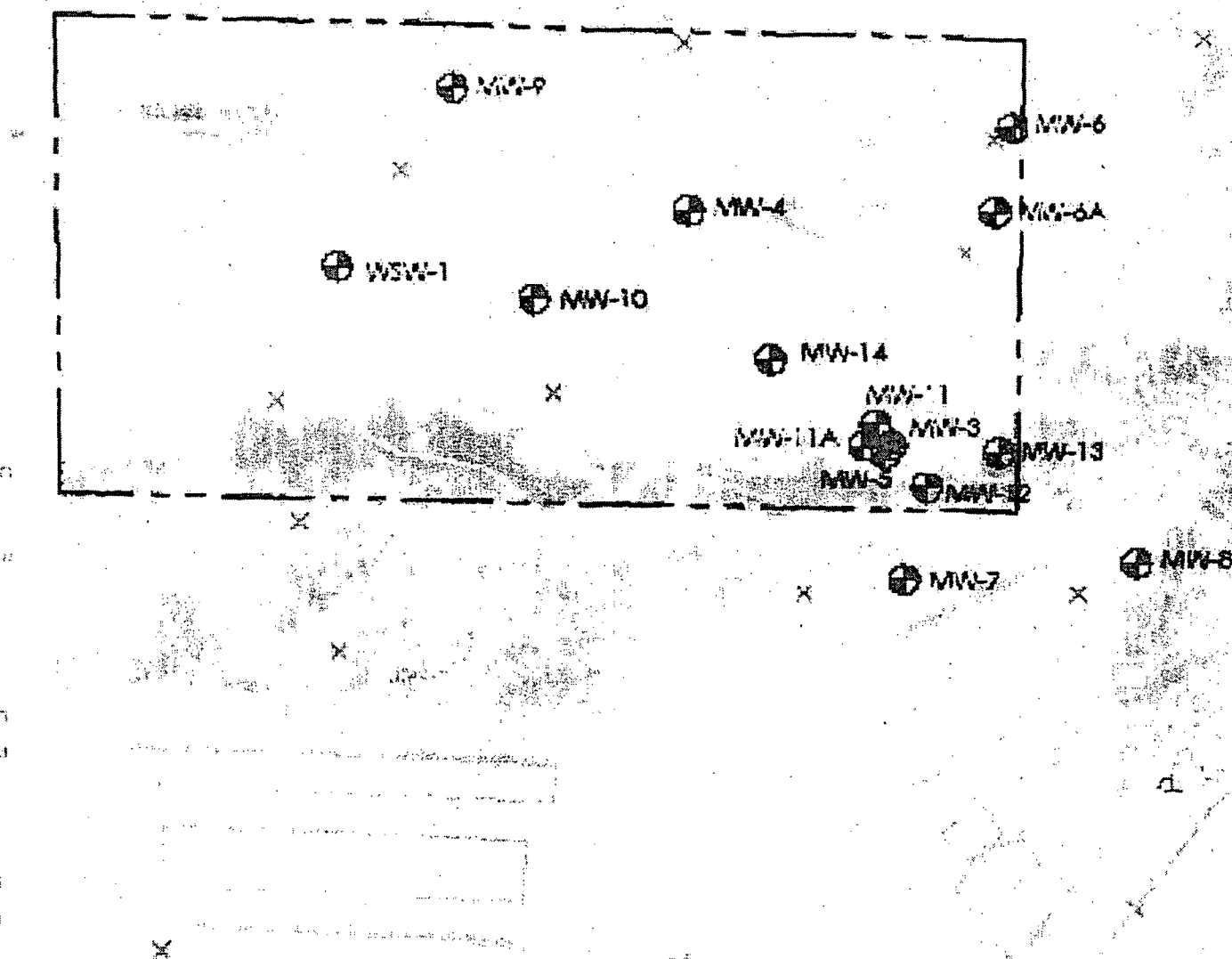


from KOMEX, Remedial
Investigation Report, 2005

MISSOURI ELECTRIC WORKS SITE
Former Transformer Storage and Debris Burial Areas



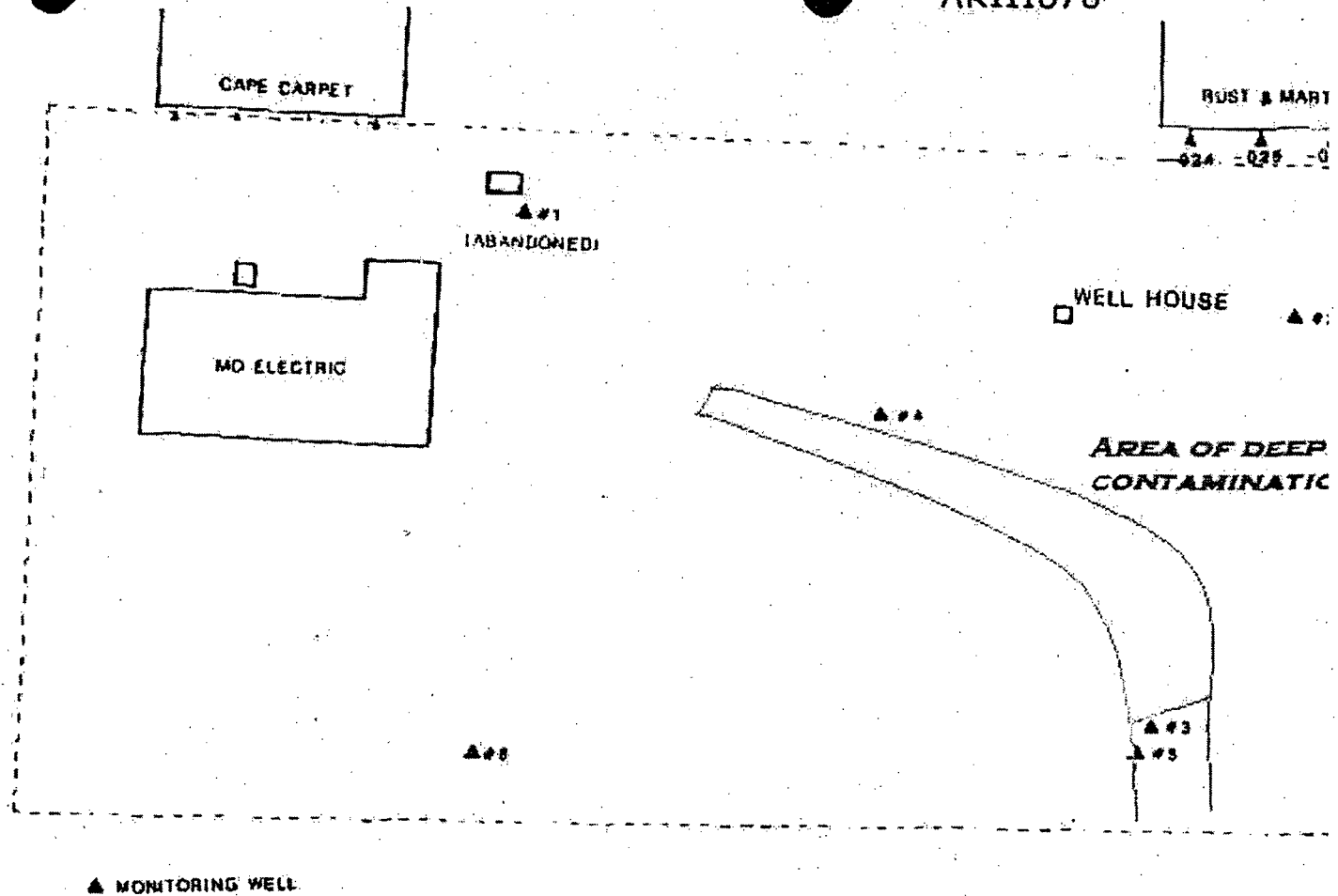
MEW Admin Record
AR111076



MISSOURI ELECTRIC WORKS SITE

2000 Monitoring Well System

from KOMEX, Remedial
Investigation Report, 2005

**MISSOURI ELECTRIC WORKS SITE****Deep PCB Contamination**

from KOMEX, Remedial
Investigation Report, 2005



LEGEND



NEW PROPERTY

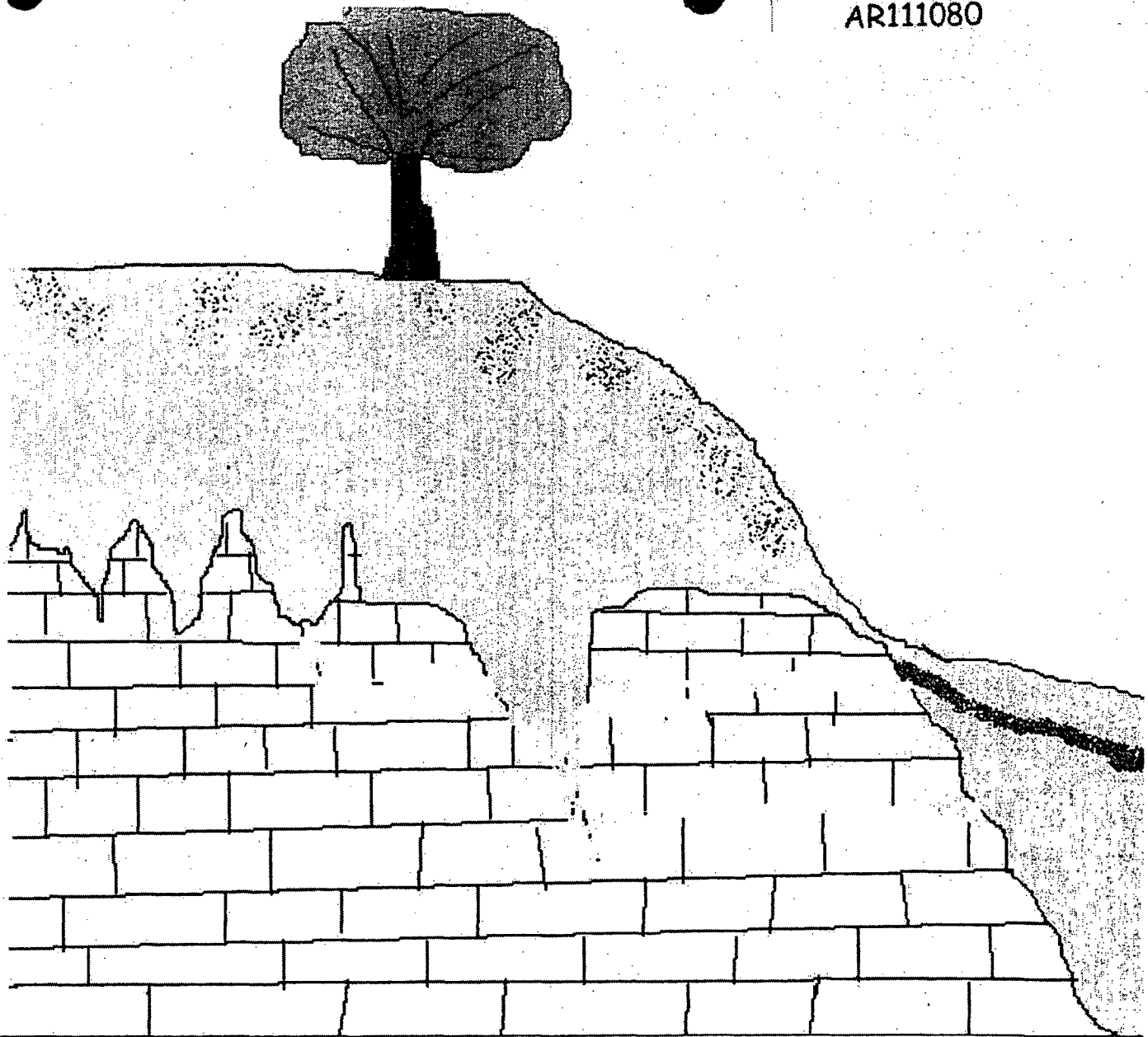
NOTES

1. View from south.
2. Vertical exaggeration approximately 1.5 times.

MISSOURI ELECTRIC WORKS SITE

Topographical Relief of Area

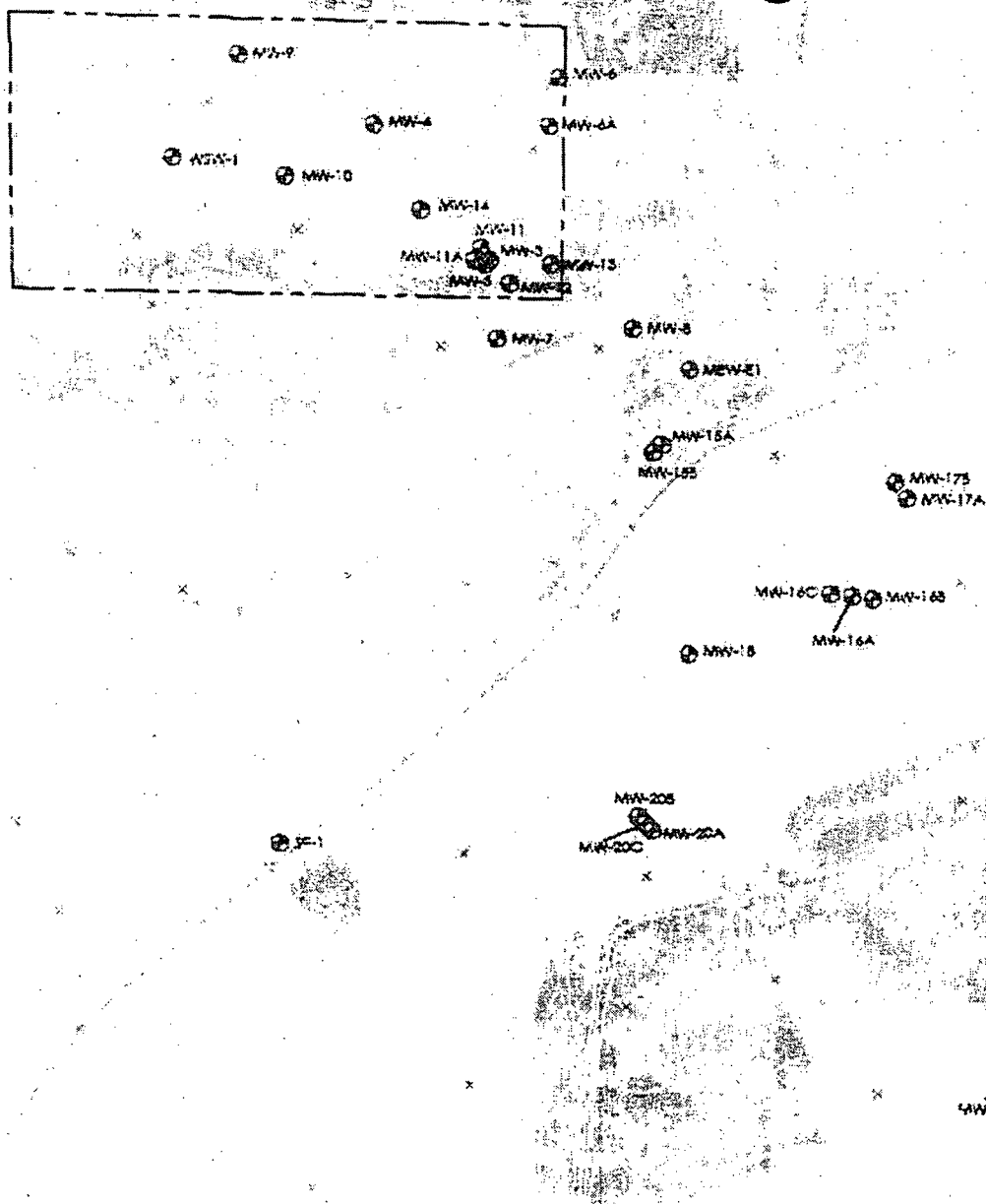
from KOMEX, Remedial
Investigation Report, 2005



MISSOURI ELECTRIC WORKS SITE

from KOMEX, Remedial
Investigation Report, 2005

Karst Bedrock Surface



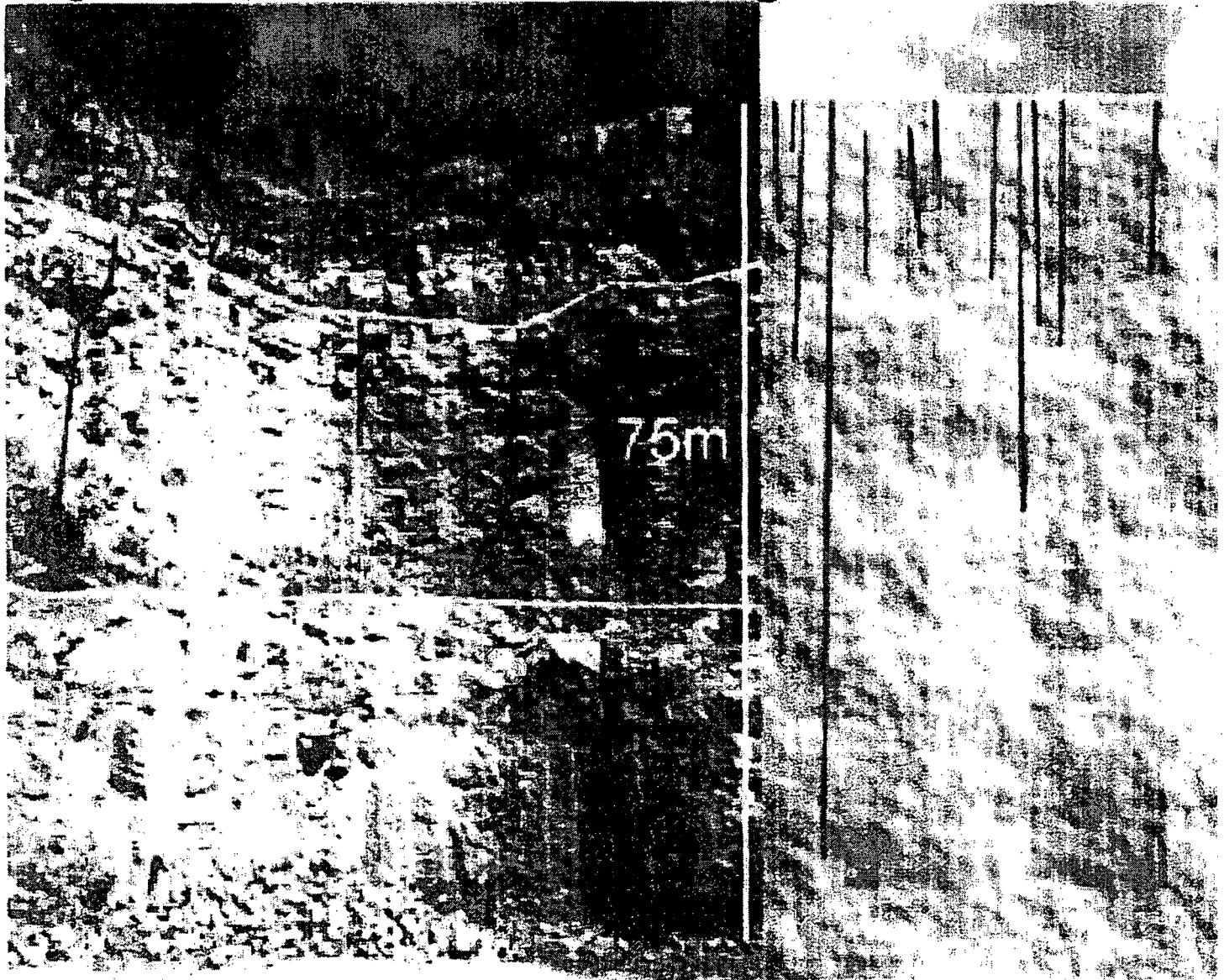
LEGEND

- GROUNDWATER
- ⊗ ASBESTOS
- MEW

MISSOURI ELECTRIC WORKS SITE

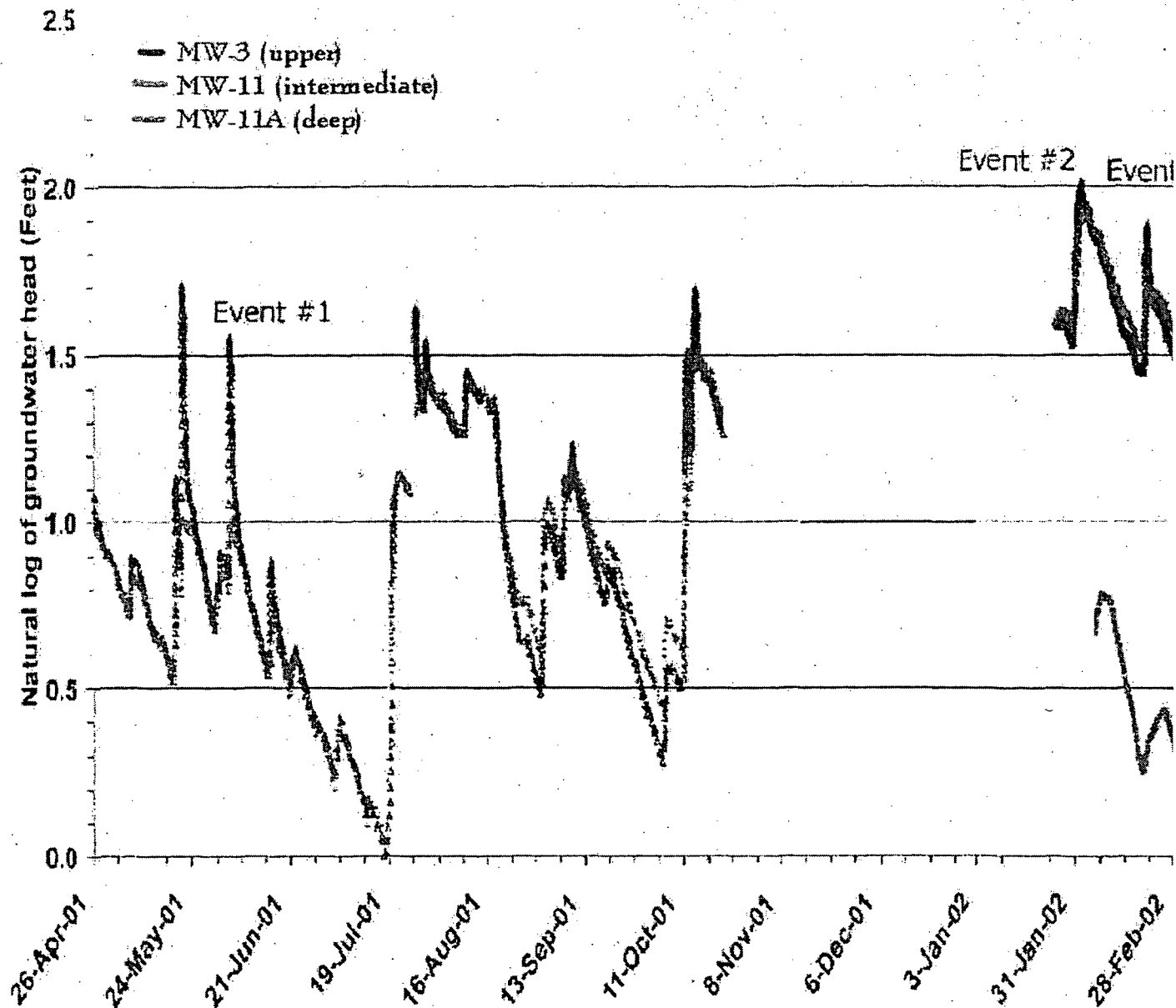
Location of Monitoring Wells

from KOMEX, Remedial
Investigation Report, 2005



from KOMEX, Remedial
Investigation Report, 2005

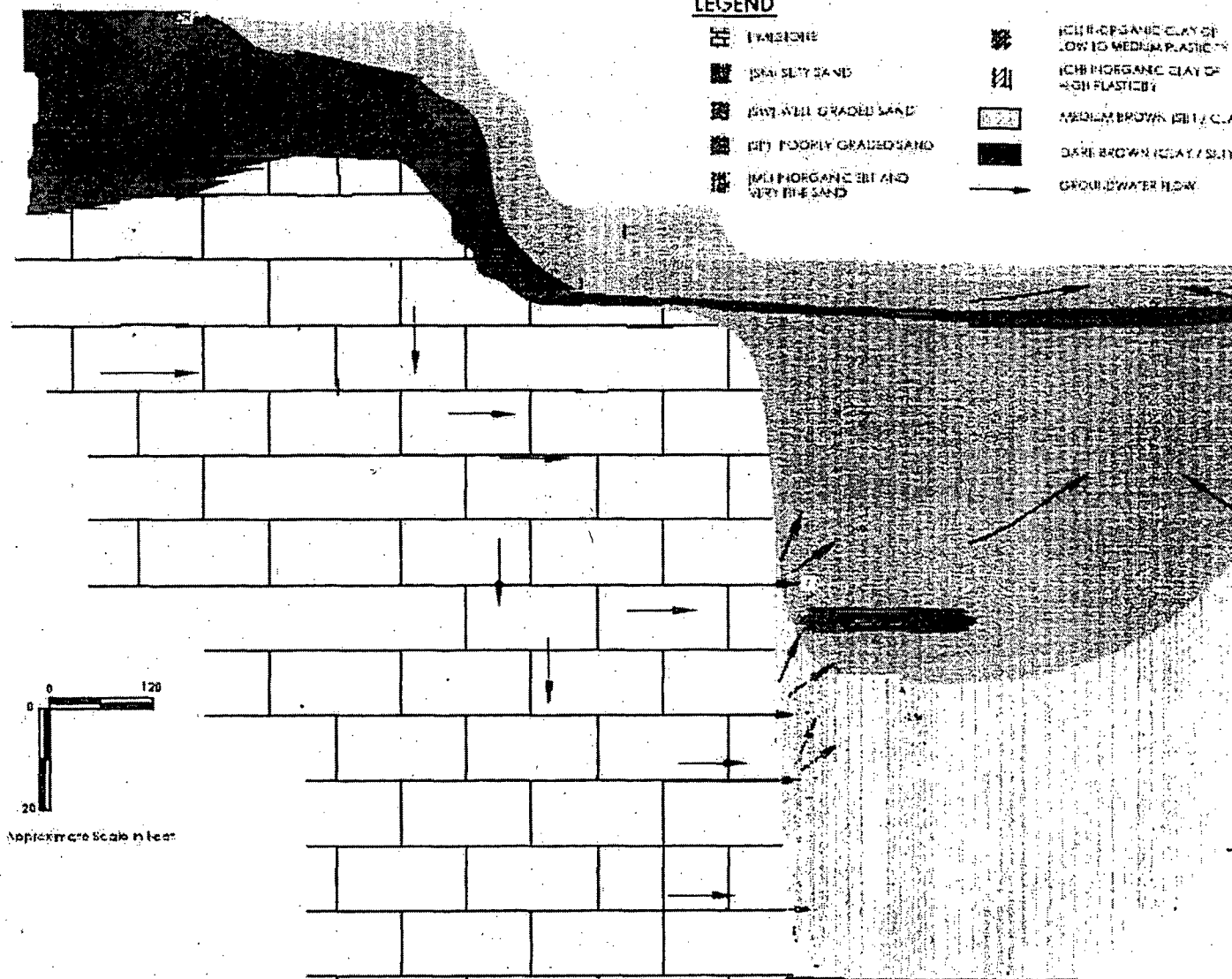
MISSOURI ELECTRIC WORKS SITE
Measured and Modeled Vertical Fractures

**MISSOURI ELECTRIC WORKS SITE****Hydrographs for Upper, Intermediate and Deep Bedrock**

from KOMEX, Remedial
Investigation Report, 2005

LEGEND

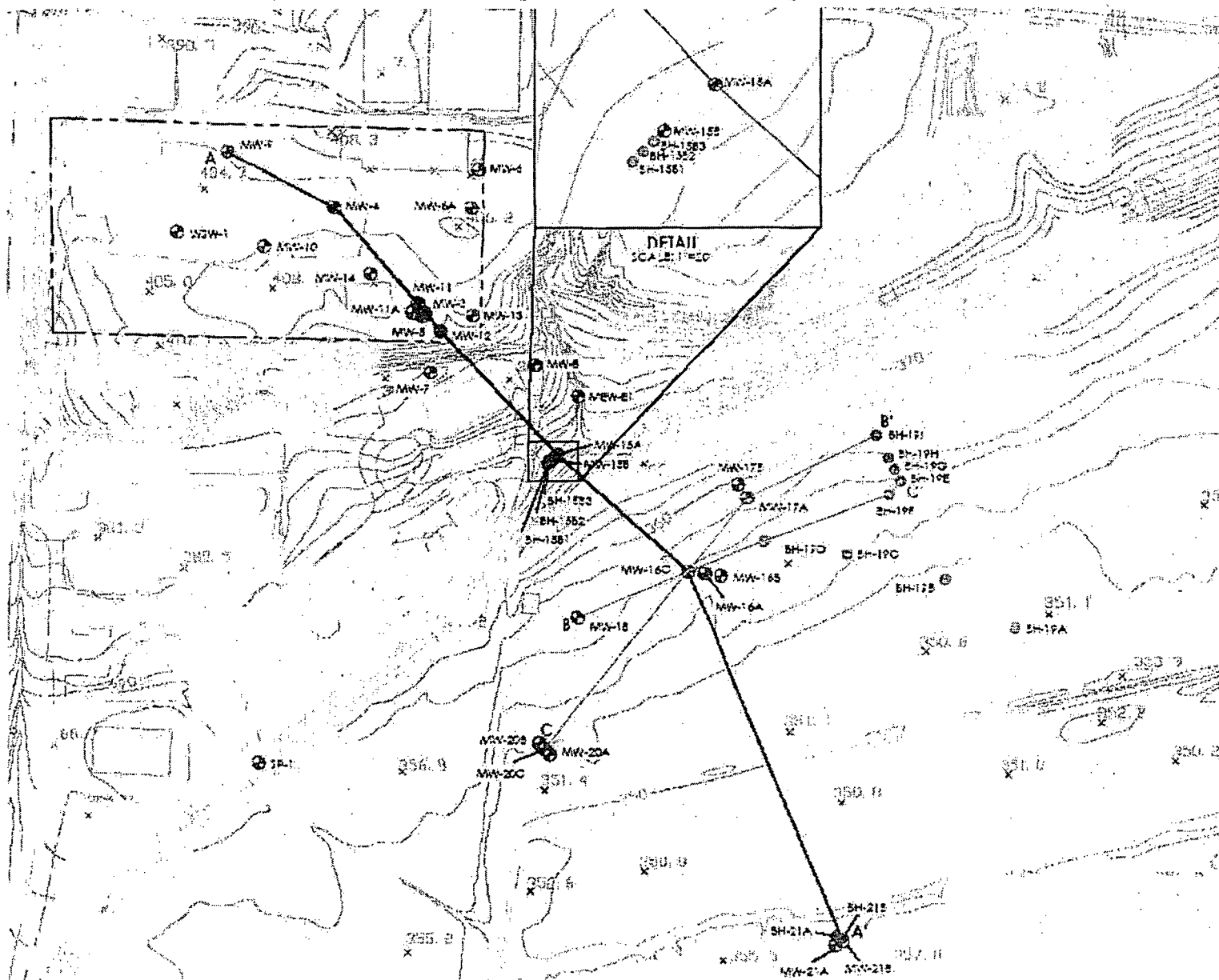
	LIMESTONE		HIGH ORGANIC CLAY OF LOW TO MEDIUM PLASTICITY
	SILT / SILTY SAND		HIGH ORGANIC CLAY OF HIGH PLASTICITY
	WELL GRADED SAND		MEDIUM BROWN SILTY CLAY
	POORLY GRADED SAND		DARK BROWN CLAY / SILTY
	INORGANIC SILT AND VERY FINE SAND		GROUNDWATER FLOW



MISSOURI ELECTRIC WORKS SITE

Potential Groundwater Flow Paths

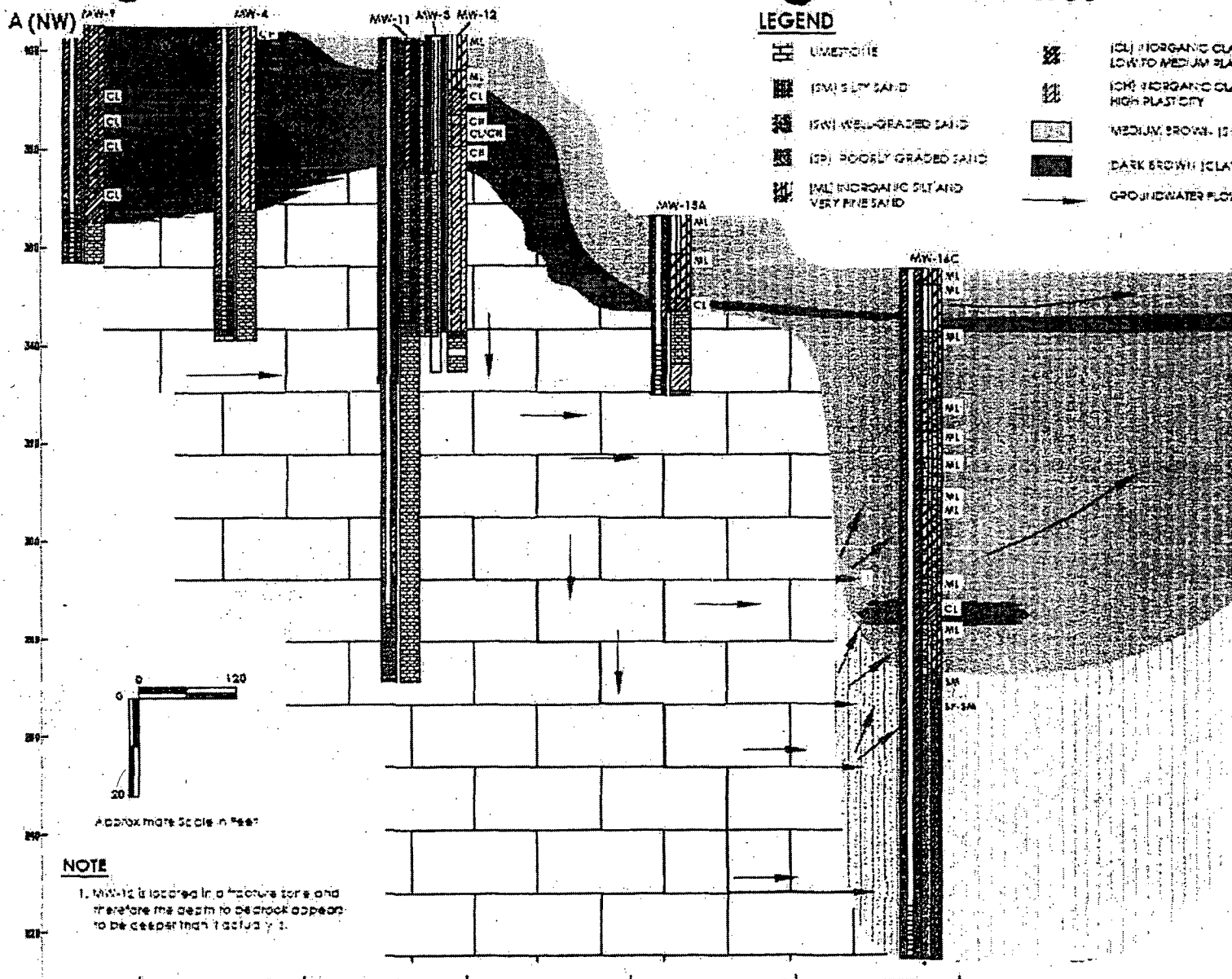
from KOMEX, Remedial
Investigation Report, 2005



MISSOURI ELECTRIC WORKS SITE

Cross-Section Locations

from KOMEX, Remedial
Investigation Report, 2005

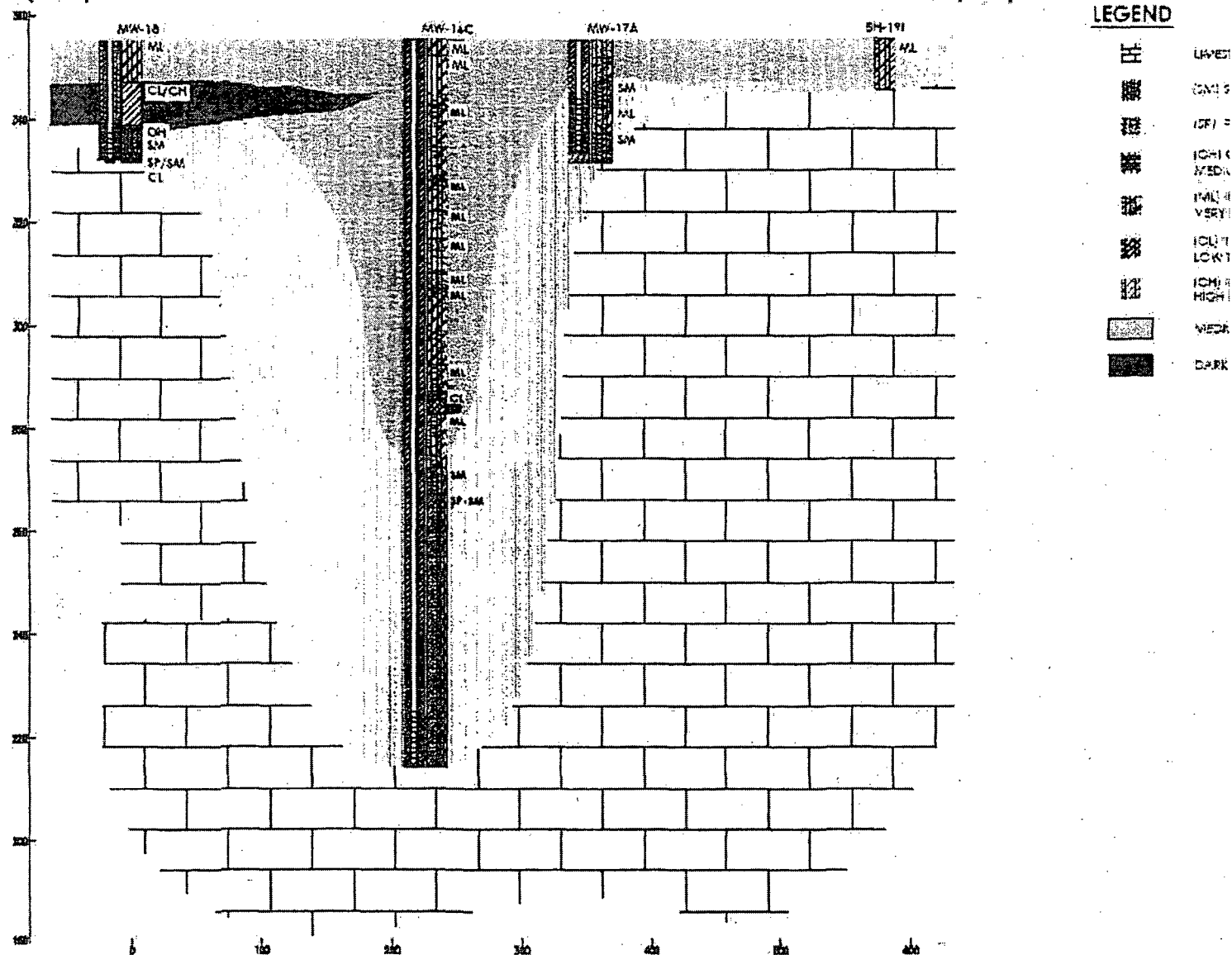


MISSOURI ELECTRIC WORKS SITE

from KOMEX, Remedial
Investigation Report, 2005

Cross-Section A-A'

B' (NNE)



MISSOURI ELECTRIC WORKS SITE

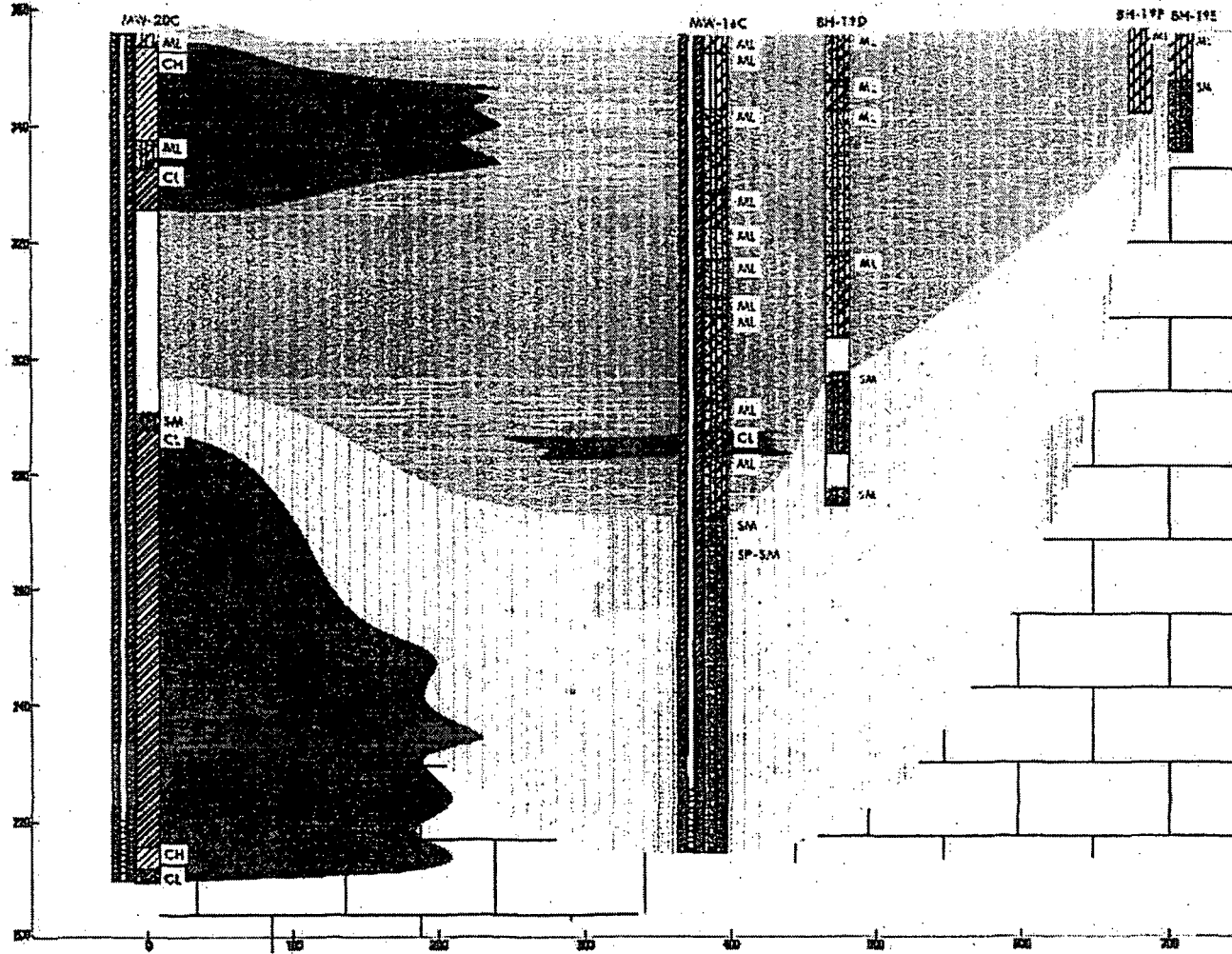
from KOMEX, Remedial Investigation Report, 2005

Cross-Section B-B'

C (SW)

C' (NE)

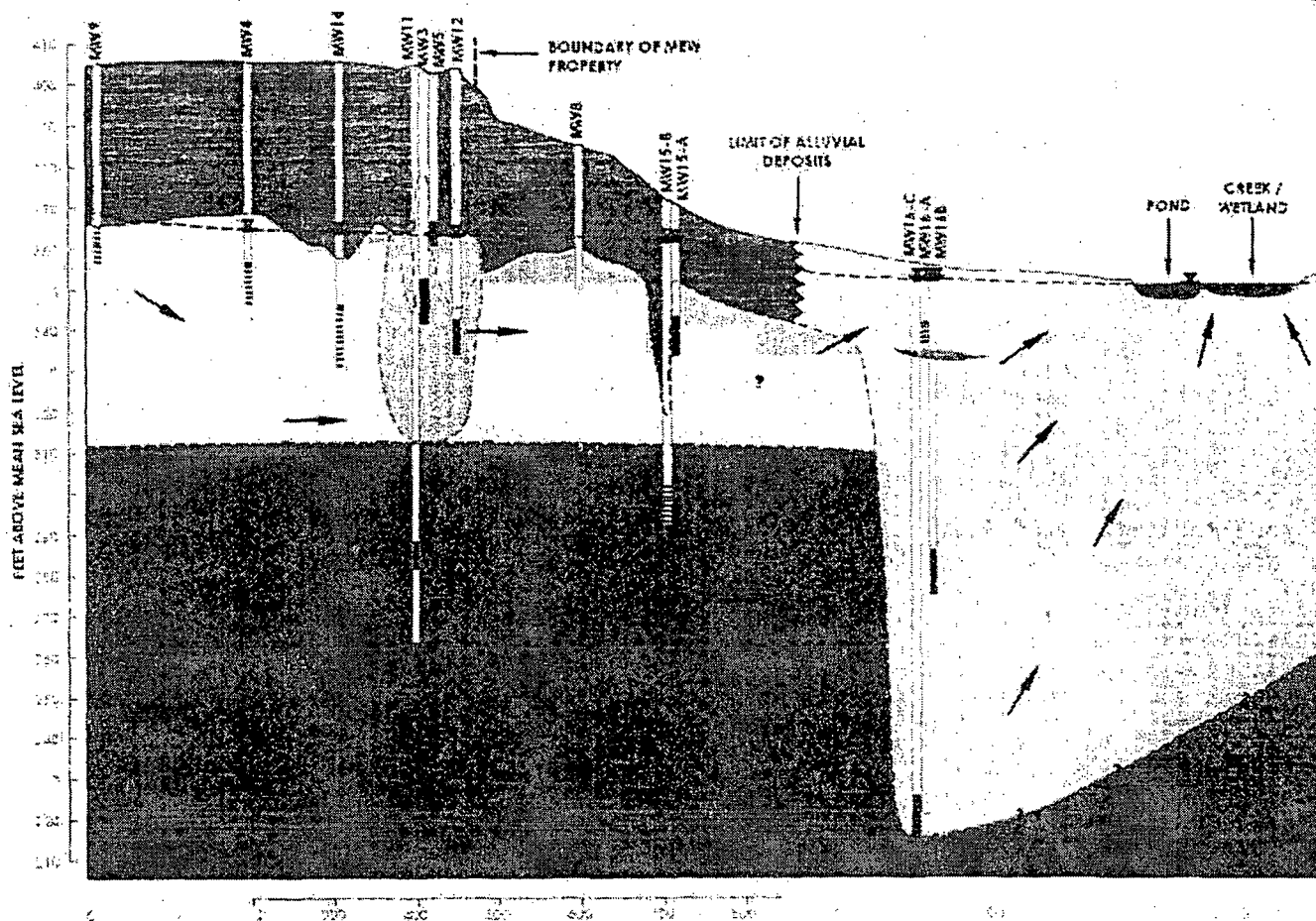
LEGEND



MISSOURI ELECTRIC WORKS SITE

Cross-Section C-C'

from KOMEX, Remedial
Investigation Report, 2005



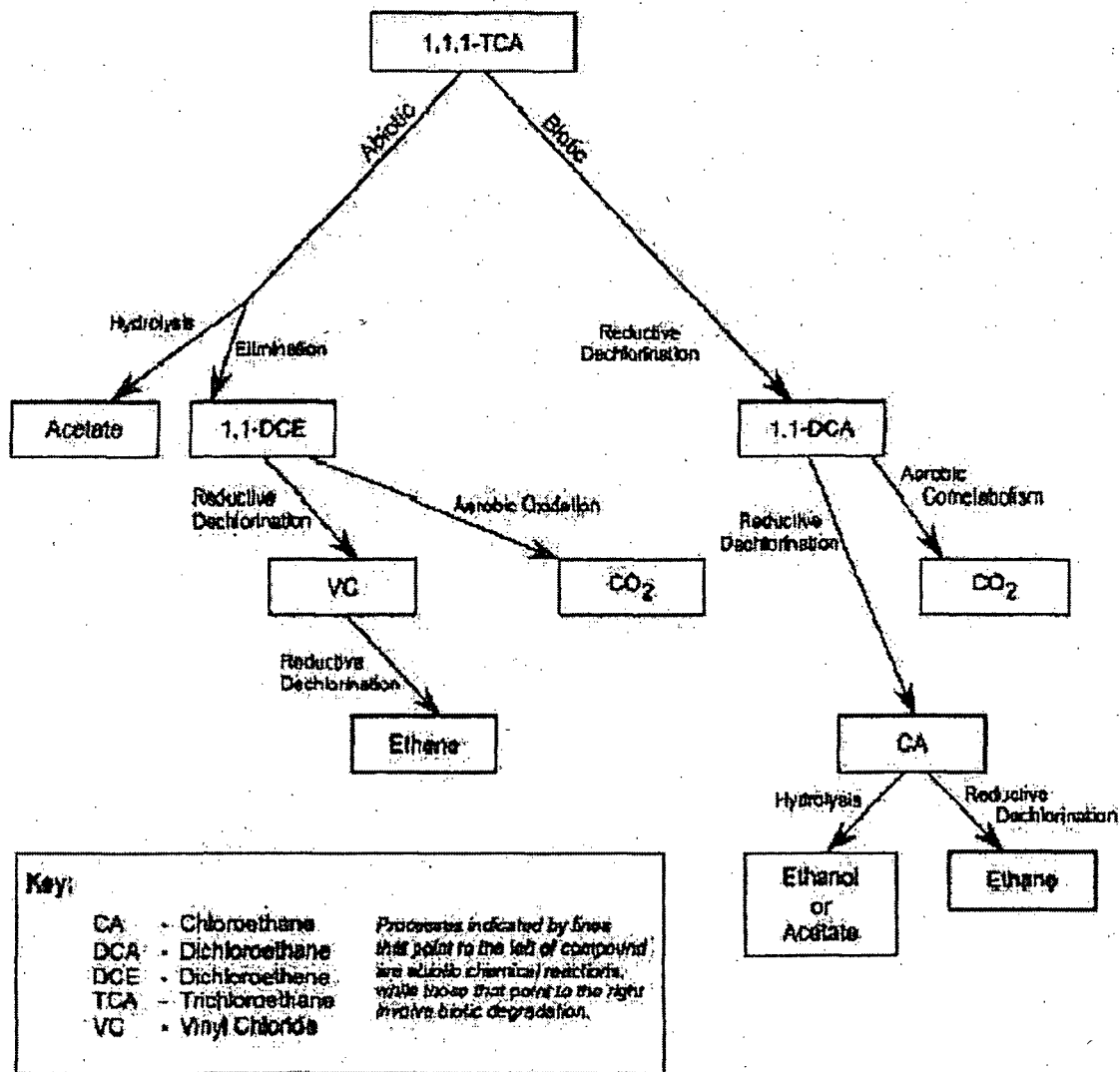
LEGEND

- | | | | | | |
|--|---------------------------------|--|---|--|--|
| | LOESS (SILTY CLAY) | | INTERPRETED EXTENT OF COPOS SOURCE ZONE | | GROUNDWATER LEVEL |
| | ALLUVIAL DEPOSITS (SILTY SANDS) | | COPOS DETECTED IN GROUNDWATER | | INTERPRETED GROUNDWATER FLOW DIRECTION |
| | CLAY | | TOP OF LIMESTONE BEDROCK (OBSERVED) | | |
| | WEATHERED LIMESTONE | | TOP OF LIMESTONE BEDROCK (INTERPRETED) | | |
| | INTERMEDIATE LIMESTONE | | INTERPRETED GROUNDWATER LEVEL | | |

MISSOURI ELECTRIC WORKS SITE

Schematic of Subsurface Conditions

from KOMEX, Remedial
Investigation Report, 2005



REFERENCE

U.S. EPA Technical Protocol for evaluating natural attenuation of chlorinated solvents in groundwater, 1998 [EPA/600/R-98/128].

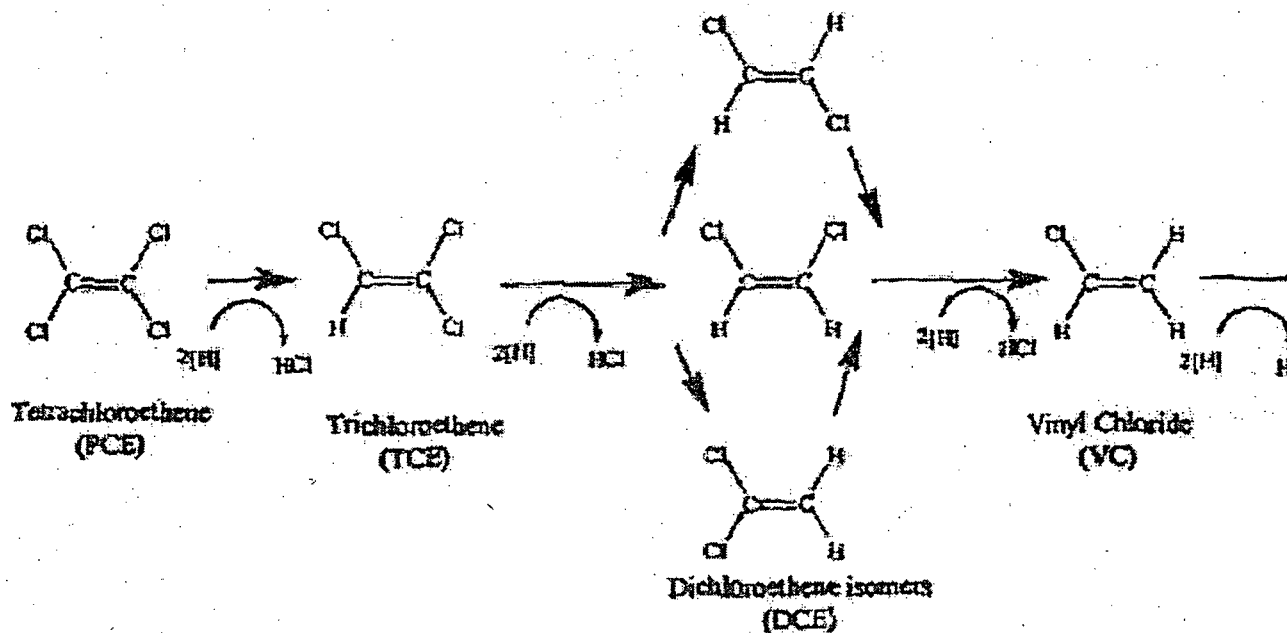
MEW Admin Record
AR111090

from KOMEX, Remedial
Investigation Report,
2005

MISSOURI ELECTRIC WORKS SITE

1,1,1-Trichloroethane Degradation Pathway

Figure 22



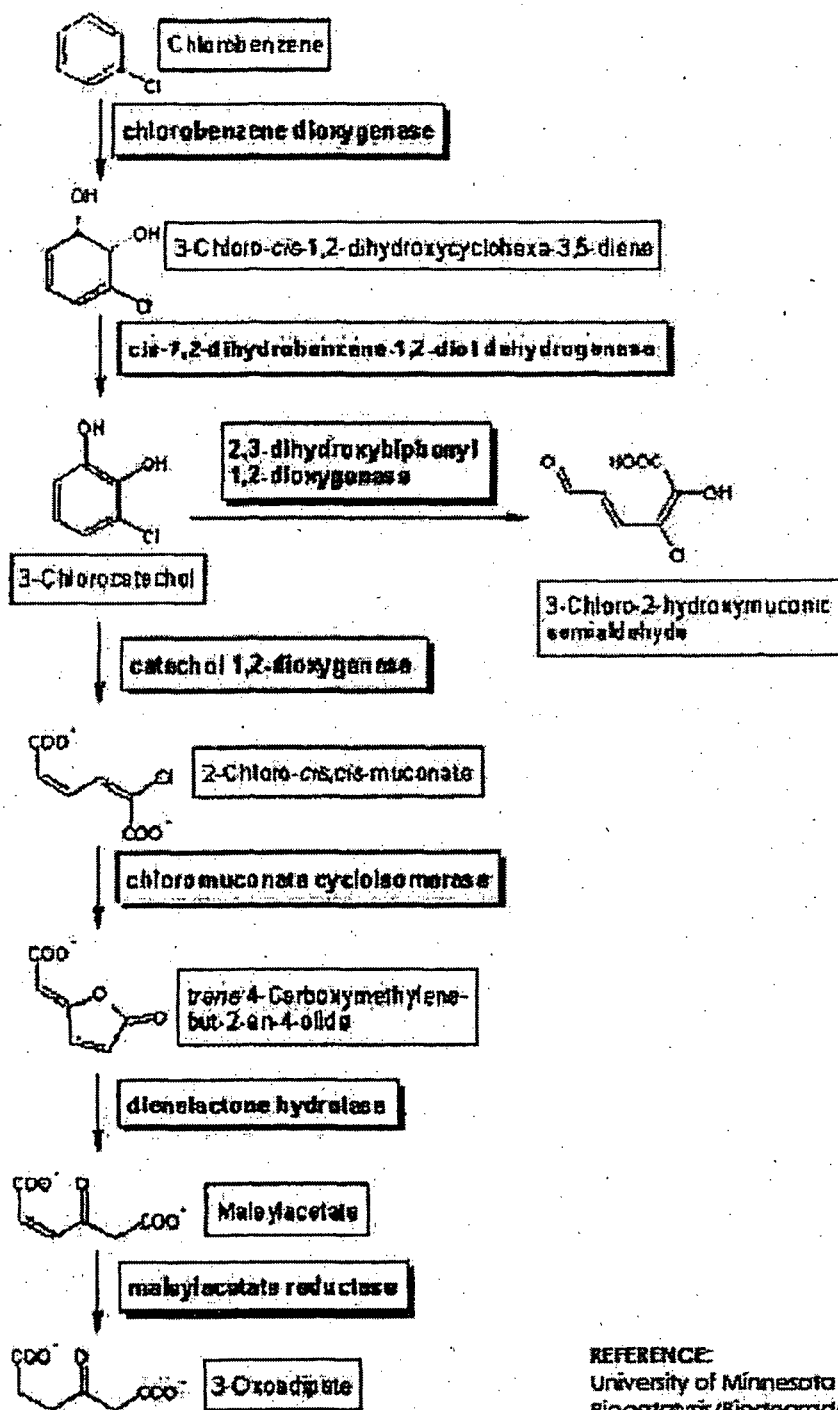
REFERENCE:

Max M. Hoggblom & Ingeborg D. Bossert.
Dehalogenation: Microbial processes and
environmental applications, 2003 (pp 386).

MISSOURI ELECTRIC WORKS SITE

PCE Degradation

from KOMEX, Remedial
Investigation Report, 2005.



REFERENCE:
University of Minnesota
Biocatalysis/Biodegradation Database,
April 6, 2005, <http://umbdb/ahe/umn.edu>

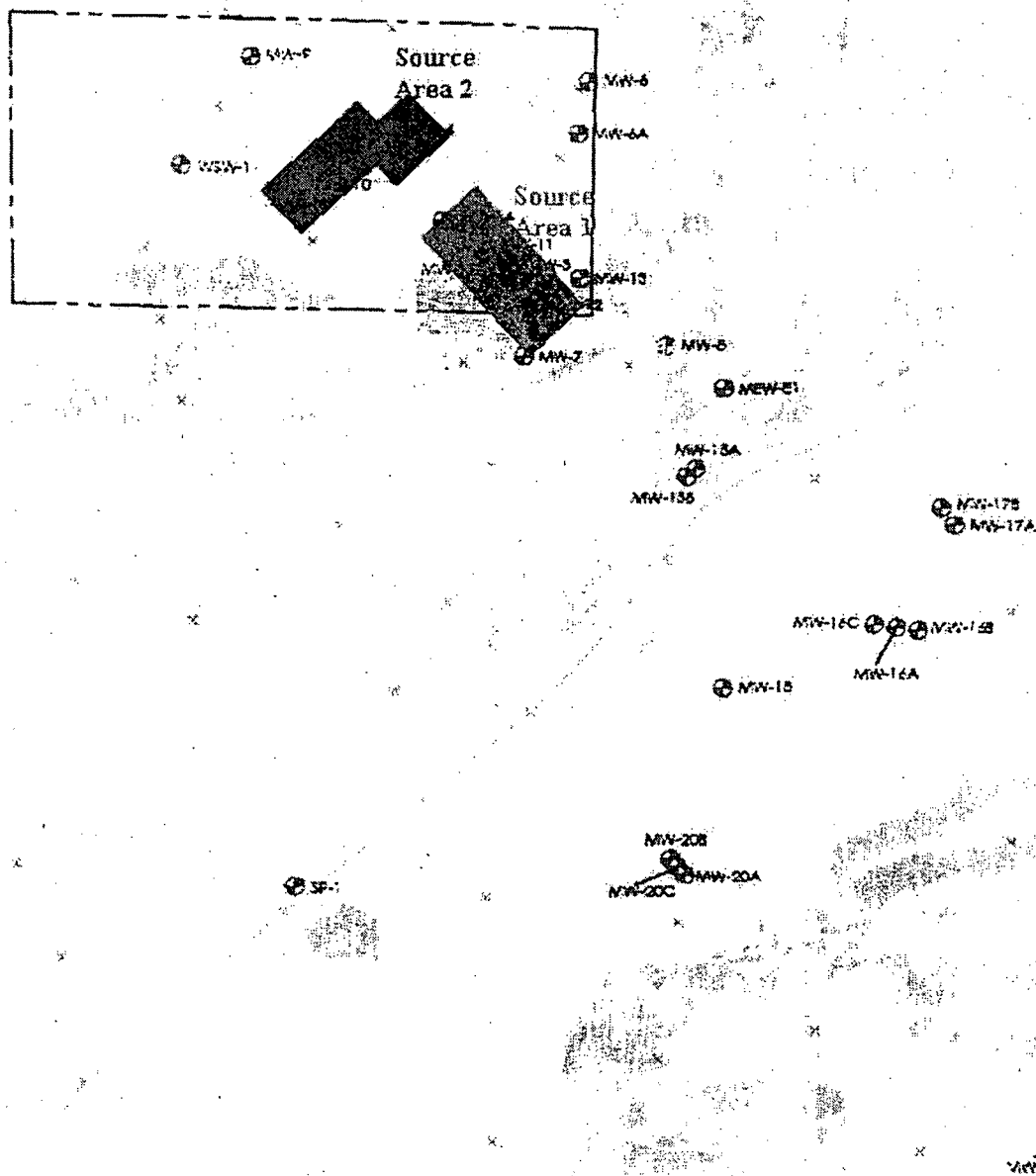
MEW Admin Record
AR11092

from KOMEX, Remedial
Investigation Report,
2005

MISSOURI ELECTRIC WORKS SITE

Chlorobenzene Degradation Pathway

Figure 24



LEGEND

- ⊙ C
- ⊙ V
- ⊙ A
- ⊙ P
- ⊙ A

NOTES

- 1) SOUR
- 2) SOUR

MISSOURI ELECTRIC WORKS SITE

Location of Groundwater Contaminant Source Areas

from KOMEX, Remedial
Investigation Report, 2005

COPC Source

Release Mechanism

Transport Medium

Pathway

Residual Soil Concentrations

Leaching/Infiltration

Groundwater

Air

Surface Water

Ingestion

Dermal Contact

Tap Water Vapor Inhalation

Ingested Fruits, Vegetables, and Feed

Meat, Milk, and Egg Ingestion (on Feed)

Meat, Milk and Eggs (Livestock Ingestion)

Inhalation of Outdoor Air

Indoor Air Inhalation (Outdoor Air)

Indoor Air Inhalation (Vapor Intrusion)

Incidental Ingestion

Dermal Contact

Surface Water Vapor Inhalation

LEGEND



COMPLETE



INCOMPLETE

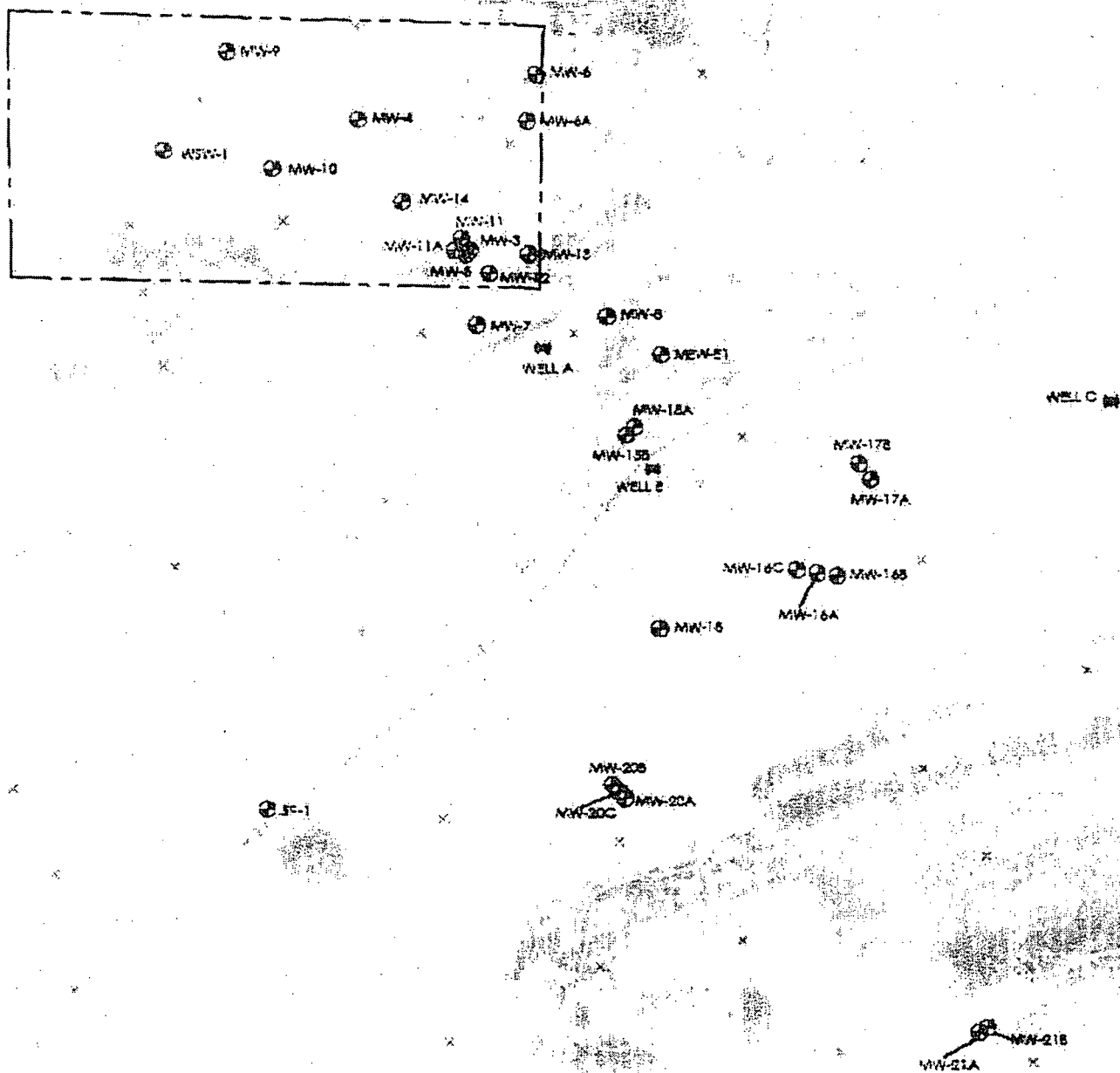
NOTES

- 1) Off-site resident scenario includes contact with creek during trespass.
- 2) * Incidental ingestion of shallow groundwater.

MISSOURI ELECTRIC WORKS SITE

Conceptual Exposure Pathways

from KOMEX, Remedial
Investigation Report, 2005



MISSOURI ELECTRIC WORKS SITE

Location of Hypothetical Wells

from KOMEX, Remedial
Investigation Report, 2005

APPENDIX A
Groundwater Monitoring Data

MEW Admin Record
AR111096

MCL: 200 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			
10	8	5.6	6.6	6.4	6	<5.0	5.3	4J	5	<5.0	<5.0	3J	<5.0
11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0	-	-	2J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002, 1,1,1-TCA concentrations were less than 5.0 ppb.							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,1,1-TCA concentrations were <5.0 ppb.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											<5.0	<5.0	<5.0
16C											<5.0	<5.0	<5.0
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. 1,1,1-TCA concentrations were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

MCL: 5 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	<5.0	<5.0	<5.0	<5.0	5	3J	1.4	4J	3J	3J	5.2	5.1	2
5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
10	7.2	7.9	5.9	9.3	13	12	12	10	8.7	5.6	4J	4J	3
11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	3.2	2J	<5.0	2J	5.6	5.4	3
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2J	-	-	5J	3J	4J	<5.0
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. TCE concentrations were less than 5.0 ppb.							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. TCE concentrations were <5.0 ppb with the exception of MW-16B and MW-16C which had concentrations of 9.2 ppb and 9.1 ppb respectively.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											9.5	7.4	
16C											9.9	9.2	
17A											<5.0	<5.0	
17B											<5.0	<5.0	
18	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. TCE concentrations were <5.0 ppb.										<5.0	<5.0	<5.0
20A													
20B													
20C													
21A													
21B													

Tetrachloroethene (PCE) Groundwater Concentrations

MCL: 5 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	<5.0	<5.0	<5.0	<5.0	3J	8.8	2.4	2J	<5.0	4J	5J	<5.0	<5.0
5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1J			<5.0
10	<5.0	<5.0	<5.0	<5.0	3J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	-	-	<5.0	<5.0	<5.0	<5.0
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. PCE concentrations were less than 5.0 ppb.							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. PCE concentrations were <5.0 ppb.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											<5.0	<5.0	<5.0
16C											<5.0	<5.0	<5.0
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. PCE concentrations were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

1,1-Dichloroethane (1,1-DCA) Groundwater Concentrations

MCL: not established

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	19	8.8	<5.0	13	15	24	17	7.5	18	9.8	15	22	16
5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	2J	<5.0			<5.0
10	16	<5.0	22	17	31	29	29	22	20	22	18	21	15
11	<5.0	<5.0	<5.0	<5.0	<5.0	4J	2.8	2J	<5.0	2J	3J	3J	2.8
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
WSW	<5.0	<5.0	<5.0	<5.0	<5.0		2J			8.7	5.7	5J	5.4
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,1-DCA concentrations were less than 5.0 ppb.							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								3J	<5.0	3J	3J	4J	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,1-DCA concentrations were <5.0 ppb with the exceptions of MW-16B and MW-16C which had concentrations of 2J ppb and 6.5 ppb, respectively.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											<5.0	2J	1.6
16C											5J	5J	5.7
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. 1,1-DCA concentrations were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

1,1-Dichloroethene (1,1-DCE) Groundwater Concentrations

MCL: not established

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	7.7	<5.0	<5.0	6.4	9.9	6.1	2.2	7	<5.0	5.2	5.1	9.8	6.9
5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
10	7	<5.0	6.8	7.8	10	8.9	9	7.6	5J	4J	4J	4J	3.6J
11	<5.0	<5.0	<5.0	<5.0	4J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0			2J			4J	4J	3J	3.7J
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,1-DCE concentrations were less than 5.0 ppb.							<5.0	<5.0	<5.0	2J	<5.0	<5.0
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,1-DCE concentrations were <5.0 ppb with the exception of MW-16B which had "J" coded data (1J).										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											<5.0	1J	<5.0
16C											<5.0	2J	<5.0
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. 1,1-DCE concentrations were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

1,2-Dichloroethene (1,2-DCE) Groundwater Concentrations

MCL: not established

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4	<5.0	<5.0	<5.0	<5.0	4J	2J	<5.0	3J	<5.0	2J	2J	4J	2.4J
5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11	<5.0	<5.0	<5.0	<5.0	2J	8	6.4	3J	<5.0	4J	9.8	7.7	7.7
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0			<5.0			<5.0	<5.0	<5.0	<5.0
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,2-DCE concentrations were less than 5.0 ppb.							<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,2-DCE concentrations were <5.0 ppb with the exceptions of MW-16B and MW-16C which had concentrations of 3J and 12 ppb respectively.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											3J	2J	2.2J
16C											12	11	10
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. 1,2-DCE concentrations were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

Benzene Groundwater Concentrations

MCL: 5 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	5.3	5.6	16	14	17	11	9	9.6	7.3	8	11	8.8	9.0
4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
5	<5.0	<5.0	<5.0	<5.0	<5.0	3J	2J	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0			<5.0			<5.0	<5.0	<5.0	<5.0
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. Benzene concentrations were less than 5.0 ppb with the exception of MW-12 which had a concentration of 26 ppb..							30	19	51	42	54	53
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. Benzene concentrations were <5.0 ppb.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											<5.0	<5.0	<5.0
16C											<5.0	<5.0	<5.0
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. Concentrations of Benzene were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

Chlorobenzene Groundwater Concentrations

MCL: 20 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	510	320	1,400	1,600	1,200	590	630	800	630	420	250	690	770
4	30	6.3	15	21	42	<5.0	<5.0	17	14	5J	4J	39	29
5	19	<5.0	16	29	45	120	130	44	7.9	38	32	20	37
6A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
7	<5.0	<5.0	<5.0	5.6	9.8	<5.0	<5.0	<5.0	<5.0	2J	<5.0	<5.0	<5.0
9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0			<5.0
10	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1J	<5.0	<5.0	<5.0	<5.0
11	6.2	8.2	7.7	<5.0	18	39	1.9	4J	<5.0	5J	3J	<5.0	10
11A	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
WSW	<5.0	<5.0	<5.0	<5.0			2J			<5.0	<5.0	3J	1.8J
12	These wells were installed during late fall 2002. They were first sampled on December 11, 2002. Chlorobenzene concentrations were: 3,000 ppb in MW-12; < 5.0 ppb in MW-13; and 7.4 ppb in MW-14.							2,000	2,000	1,800	2,000	2,100	1,500
13								<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
14								2J	8.9	5J	5J	6	4.7J
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. Chlorobenzene concentrations were <5.0 ppb.										<5.0	<5.0	<5.0
15B											<5.0	<5.0	<5.0
16A											<5.0	<5.0	<5.0
16B											<5.0	<5.0	<5.0
16C											<5.0	<5.0	<5.0
17A											<5.0	<5.0	<5.0
17B											<5.0	<5.0	<5.0
18											<5.0	<5.0	<5.0
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. Chlorobenzene concentrations were <5.0 ppb.												<5.0
20B													<5.0
20C													<5.0
21A													<5.0
21B													<5.0

1,2,4-Trichlorobenzene (1,2,4-TCB) Groundwater Concentrations

MCL: 70 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
4	41	<10	18	16	30	30	<10	20	22	8J	6J	45	41
5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
6A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
7	24	<10	<10	<10	16	28	8J	15	51	62	16	13	21
9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
10	31	31	28	18	10	13	12	9J	7J	4J	4J	3J	<10
11	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
11A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
WSW	<10	<10	<10	<10			<10			<10	<10	<10	<10
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,2,4-TCB concentrations were less than 10 ppb with the exception of MW-12 which had a concentration of 30 ppb.							26	<10	16	16	11	13
13								<10	<10	<10	<10	<10	<10
14								<10	<10	<10	2J	2J	<10
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,2,4-TCB concentrations were <10 ppb.										<10	<10	<10
15B											<10	<10	<10
16A											<10	<10	<10
16B											<10	<10	<10
16C											2J	<10	<10
17A											<10	<10	<10
17B											<10	<10	<10
18											<10	<10	<10
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. 1,2,4-TCB concentrations were <10 ppb.												<10
20B													<10
20C													<10
21A													<10
21B													<10

1,2-Dichlorobenzene (1,2-DCB) Groundwater Concentrations

MCL: not established

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<10	<10	<10	<10	<10	<10	2J	2J	<10	2J	2J	2J	1.5J
4	<10	<10	<10	3J	<10	5U	4J	2J	<10	<10	5J	5J	4.8J
5	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
6A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
7	<10	<10	<10	<10	<10	<10	<10	<10	<10	2J	<10	<10	<10
9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
11	<10	<10	<10	<10	<10	<10	5U	<10	<10	<10	<10	<10	<10
11A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
WSW	<10	<10	<10	<10			<10			<10	<10	<10	<10
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,2-DCB concentrations were less than 10 ppb with the exception of MW-12 which had a concentration of 33 ppb.							28	9J	19	17	15	16
13								<10	<10	<10	<10	<10	<10
14								<10	<10	<10	2J	2J	<10
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,2-DCB concentrations were <10 ppb.										<10	<10	<10
15B											<10	<10	<10
16A											<10	<10	<10
16B											<10	<10	<10
16C											<10	<10	<10
17A											<10	<10	<10
17B											<10	<10	<10
18											<10	<10	<10
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. Concentrations of 1,2-DCB were <10 ppb.												<10
20B													<10
20C													<10
21A													<10
21B													<10

1,3-Dichlorobenzene (1,3-DCB) Groundwater Concentrations

MCL: not established

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<10	<10	<10	<10	6J	6J	8J	9J	<10	9J	9J	6J	5.7J
4	13	<10	<10	<10	8J	<10	5U	9J	7J	10	7J	16	16
5	<10	<10	<10	<10	<10	<10	<10	1J	8J	<10	<10	<10	<10
6A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
7	<10	<10	<10	<10	<10	<10	<10	2J	4J	4J	2J	<10	<10
9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
11	<10	<10	<10	<10	<10	<10	5U	<10	<10	<10	<10	<10	<10
11A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
WSW	<10	<10	<10	<10			<10			<10	<10	<10	<10
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,3-DCB concentrations were less than 10 ppb with the exception of MW-12 which had a concentration of 98 ppb.							100	37	71	67	51	54
13								<10	<10	<10	<10	<10	<10
14								<10	<10	<10	2J	2J	2.1J
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,3-DCB concentrations were <10 ppb.										<10	<10	<10
15B											<10	<10	<10
16A											<10	<10	<10
16B											<10	<10	<10
16C											3J	3J	2.6J
17A											<10	<10	<10
17B											<10	<10	<10
18											<10	<10	<10
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. Concentrations of 1,3-DCB were <10 ppb.												<10
20B													<10
20C													<10
21A													<10
21B													<10

1,4-Dichlorobenzene (1,4-DCB) Groundwater Concentrations

MCL: 750 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	25	16	17	12	17	18	20	22	<10	21	24	16	15
4	<10	<10	<10	13	4J	5U	9J	7J	5J	3J	21	21	23
5	<10	<10	<10	<10	<10	5J	8J	7J	21	<10	5J	<10	<10
6A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
7	<10	<10	<10	<10	<10	<10	<10	3J	4J	8J	2J	2J	<10
9	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10			<10
10	<10	<10	<10	<10	<10	2J	<10	1J	<10	<10	<10	<10	<10
11	<10	<10	<10	<10	<10	<10	5U	<10	<10	<10	<10	<10	1.6J
11A	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
WSW	<10	<10	<10	<10			<10			<10	<10	<10	<10
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. 1,4-DCB concentrations were less than 10 ppb with the exception of MW-12 which had a concentration of 120 ppb.							100	43	77	72	51	50
13								<10	<10	<10	<10	<10	<10
14								<10	2J	4J	4J	4J	3.6J
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. 1,4-DCB concentrations were <10 ppb with the exception of MW-16C which had a concentration of 2J.										<10	<10	<10
15B											<10	<10	<10
16A											<10	<10	<10
16B											<10	<10	<10
16C											2J	<10	1.5J
17A											<10	<10	<10
17B											<10	<10	<10
18											<10	<10	<10
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. 1,4-DCB concentrations were <10 ppb.												<10
20B													<10
20C													<10
21A													<10
21B													<10

Aroclor 1260 (unfiltered) Groundwater Concentrations

MCL: 0.5 ppb

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	4.7	1.1	<0.50	1.2	<0.50	0.7	2.1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25
4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25
5	85	11	5.4	13	12	110	36	14	5	11	28	<0.50	1.5
6A	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			<0.25
7	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.3J	<0.50	<0.25
9	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			<0.25
10	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25
11	14	3.5	0.9	1.2	2.6	0.69	0.59	<0.50	<0.50	1	0.4J	<0.50	0.2J
11A	3	<0.50	1.8	1.4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25
WSW	<0.50	<0.50	<0.50	<0.50			<0.50			<0.50		<0.50	<0.25
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. PCB (Aroclor 1260-unfiltered) concentrations were less than 0.50 ppb.							<0.50	<0.50	<0.50	8.3	<0.50	<0.25
13								<0.50	<0.50	<0.50	<0.50	<0.50	<0.25
14								<0.50	<0.50	<0.50	<0.50	<0.50	<0.25
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. PCB (Aroclor 1260-unfiltered) concentrations were less than 0.50 ppb.										<0.50	<0.50	<0.25
15B											<0.50	<0.50	<0.25
16A											<0.50	<0.50	<0.25
16B											<0.50	<0.50	<0.25
16C											<0.50	<0.50	<0.25
17A											<0.50	<0.50	<0.25
17B											<0.50	<0.50	<0.25
18											<0.50	<0.50	<0.25
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. PCB (Aroclor 1260-unfiltered) concentrations were less than 0.50 ppb.												<0.25
20B													<0.25
20C													<0.25
21A													<0.25
21B													<0.25

Aroclor 1260 (filtered) Groundwater Concentrations

MCL: not established

Well No.	Concentration in ppb												
	Apr-01	Jul-01	Oct-01	Jan-02	May-02	Aug-02	Oct-02	Feb-03	May-03	Aug-03	Oct-03	Feb-04	May-04
3	<0.20	<0.50	--	<0.50	--	0.20U	--	--	--	--	--	--	--
4	--	--	--	--	--	--	0.20U	--	--	--	--	--	--
5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--
6A	--	--	--	--	--	--	--	--	--	--	--	--	--
7	--	--	--	--	--	--	--	--	--	--	<0.50	--	--
9	--	--	--	--	--	--	--	--	--	--	--	--	--
10	--	--	--	--	--	--	--	--	--	--	--	--	--
11	<0.50	<0.50	<0.50	<0.50	<0.50	--	0.20U	--	--	<0.50	<0.50	--	--
11A	<0.50	--	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	--	--	--	--
WSW	--	--	--	--	--	--	--	--	--	--	--	--	--
12	These wells were installed during late November - early December 2002. They were first sampled on December 11, 2002. Analysis for PCB (Aroclor 1260-filtered) was not performed at that time.							--	--	<0.50	<0.50	--	--
13								--	--	--	--	--	--
14								--	--	--	--	--	--
15A	These wells were installed during late August to early September 2003. They were first sampled September 15 or 16, 2003. Analysis for PCB (Aroclor 1260-filtered) was not performed.										--	--	--
15B											--	--	--
16A											--	--	--
16B											--	--	--
16C											--	--	--
17A											--	--	--
17B											--	--	--
18											--	--	--
20A	These wells were installed during April 2004. They were first sampled April 19 or 20, 2004. Analysis for PCB (Aroclor 1260-filtered) was not performed.										--	--	--
20B											--	--	--
20C											--	--	--
21A											--	--	--
21B											--	--	--

APPENDIX B

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

Historical Groundwater Data

WELL	DATE	CHEMICAL COMPOUND									1, D
		1,1,1- TCA	TCE	PCE	1,1- DCA	1,2- DCE	Benzene	Chlorobenzene	1,2,4- TCB	1,2- DCB	
MW-3	Nov-89	—	—	—	16	52	—	86	—	—	
	Mar-90	—	4J	—	18	52	6J	240	—	—	
	Jan-91	<5.0	<5.0	—	8	35	—	240	<0.1	58.5	
MW-4	Mar-90	—	3J	12	6	—	—	—	—	—	
	Jan-91	<5.0	<5.0	—	<5.0	<5.0	—	<5.0	<1.0	<1.0	
MW-5	Nov-89	—	—	—	12	41	—	111	—	—	
	Mar-90	—	—	—	9	17	—	112	—	—	
	Jan-91	<5.0	<5.0	—	5	9	—	29	<1.0	<1.0	
MW-6A	Mar-90	—	—	—	—	—	—	—	—	—	
	Jan-91	<5.0	<5.0	—	<5.0	<5.0	—	<5.0	1	<1.0	
MW-7	Mar-90	—	—	—	—	—	—	—	—	—	
	Jan-91	<5.0	<5.0	—	<5.0	<5.0	—	<5.0	65.5	<1.0	
MW-8	Mar-90	—	—	—	—	—	—	—	—	—	
	Jan-91	<5.0	<5.0	—	<5.0	<5.0	—	<5.0	<1.0	<1.0	
MW-9	Mar-90	—	—	—	—	—	—	—	—	—	
	Jan-91	<5.0	<5.0	—	<5.0	<5.0	—	<5.0	<1.0	<1.0	
MW-10	Mar-90	—	17	—	3J	—	—	—	—	—	
	Jan-91	6	17	—	—	<5.0	—	<5.0	<1.0	<1.0	
MW-11	Jan-91	<5.0	8	—	<5.0	—	—	36	—	76	

Notes:

TCA = trichloroethane

TCE = trichloroethene

PCE = tetrachloroethene

DCA = dichloroethane

TCB = trichlorobenzene

DCB = dichlorobenzene

— not analyzed

Data reported as micrograms/liter (ug/l) or ppb

Potential Chemical Specific ARARs and TBCs

Authority	Requirement	Status	Synopsis of Requirement	Con
Federal Regulatory Requirements	Safe Drinking Water Act (SDWA) – Maximum Contaminant Levels (MCLs) (40 CFR §141.11 - 141.14). Revised MCLs (40 CFR §141.61 – 141.62) and non-zero Maximum Contaminant Level Goals (MCLGs) (40 CFR §141.50 – 141.51).	Relevant and Appropriate	MCLs have been promulgated for a number of common organic and inorganic contaminants to regulate the concentration of contaminants public drinking water supply systems. MCLs are applicable because Site groundwater is a potential drinking water supply.	MCLs are used to
	National Ambient Water Quality Criteria (NAWQC) (33 U.S.G. §1314(a) and 42 U.S.C. §9621(D)(2) AND Water Quality Standards (40 CFR §131.36(b) and 131.38)	Relevant and Appropriate	NAWQC and water quality standards are intended to protect human health and aquatic life from contamination in surface water.	Although the NAWQC they may be potential groundwater in the MCLGs. Water quality appropriate in cases of surface water or treated groundwater
State Regulatory Requirements	Missouri Water Quality Standards (10 CSR 20-7.031)	Applicable	Identifies beneficial uses of water to the state, criteria to protect those uses, and defines the anti-degradation policy.	Applicable to all
	Public Drinking Water Program Maximum Volatile Organic Chemical Contaminant Levels and Monitoring Requirements (10 CSR 0-4.100)	Applicable	State MCLs have been promulgated for a number of common organic contaminants to regulate the concentration of contaminants in public drinking water supply systems. The regulations are generally equivalent to the Federal SDWA MCLs. State MCLs are applicable for Site groundwater because groundwater in the vicinity is a potential drinking water supply	State MCLs are consistent with federal standards
Guidance	U.S. Environmental Protection Agency (EPA) Risk Reference Doses (RfDs)	To Be Considered	RfDs are dose levels developed by EPA for evaluating incremental human carcinogenic risk from exposure to carcinogens	RfDs are used to evaluate exposure to non-carcinogens
	EPA Human Health Assessment Cancer Slope Factors (CSFs)	To Be Considered	CSFs are developed for evaluating incremental human carcinogenic risk from exposure to carcinogens.	CSFs are used to evaluate exposure to carcinogens
	EPA Health Advisories, Human Health Risk Assessment Guidance and Ecological Risk Assessment Guidance	To Be Considered	These guidance documents and advisories establish criteria and provide guidelines for evaluating human health and ecological risks at CERCLA sites.	These guidance documents are used to evaluate human health and ecological risks at CERCLA sites.
	Clean-up Levels for Missouri (CALM) – Appendix B (Tier 1 Soil and Groundwater Cleanup Standards)	To Be Considered	Establishes conservatively-derived, risk-based Groundwater Target Concentrations (GTARC) for remediation of voluntary cleanup sites in Missouri.	Although GTARC may be considered, promulgated MCLs are used for remediation of CERCLA sites.

Potential Location Specific ARARs and TBCs

Authority	Requirement	Status	Synopsis of Requirement	Con
Federal Regulatory Requirements	Protection of Wetlands (Executive Order 11990, 40 CFR Part 6, Appendix A)	Applicable	Requires federal agencies to minimize the destruction, loss, or degradation of wetlands; preserve and enhance the natural and beneficial value of wetlands; and avoid support of new construction in wetlands if a practicable alternative exists.	The U.S. Army jurisdictional w
	Floodplain Management (Executive Order 11988, 40 CFR 6.302(b) and 40 CFR Part 6, Appendix A)	Applicable	Requires federal agencies to evaluate the potential effects of an action they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain.	The potential ei will be consider evaluation of re measures will b floodplains.
	Resource Conservation and Recovery Act (RCRA) Floodplain Restriction for Hazardous Facilities (40 CFR 264.18(b))	Applicable	A hazardous waste facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent wash-out of any hazardous waste by a 100-year flood, unless the owner or operator can demonstrate that procedures are in effect that will cause the waste to be removed safely before the flood can reach the facility.	If remedial alte include hazards at the Site, then with these requ
State Regulatory Requirements	Protection of Lakes and Streams Missouri Water Quality Standards (10 CSR 20-7.03)	Applicable	Promulgates rules to protect quality of lakes and streams. Beneficial uses of Cape La Croix Creek are designated as livestock and wildlife watering and protection of warm water and aquatic life and human health (fish consumption).	Chemical speci B-1.

Potential Action-Specific ARARs and TBCs

Authority	Requirement	Status	Synopsis of Requirement	Considerations
Federal Regulatory Requirements	Standards Applicable to Transporters of Hazardous Waste (40 CFR Part 263)	Applicable	Establishes standards which apply to persons transporting hazardous waste within the United States if the transportation requires a manifest pursuant to 40 CFR part 262.	If alternative invc hazardous materi
	Safe Drinking Water Act (SDWA) – §1412(b)(4)(E)(ii)	Applicable	Regulates the design, management, and operation of point of use (POU) or point of entry (POE) treatment units used to achieve compliance with a MCL.	If individual well these units will n
	Safe Drinking Water Act – Criteria and procedures for public water systems using point of entry devices (40 CFR §141.100)	Applicable	Establishes criteria and procedures for Public Water Systems using POE devices.	If water supply w which require we
	Safe Drinking Water Act – Variances and exemptions from the maximum contaminant levels for organic and inorganic chemicals (40 CFR §142.60)	Applicable	Identifies technologies and treatment techniques or other means available to achieve compliance with MCLs.	If wellhead treatn system best avail to attain MCLs.

Appendix B

**List of Settling Defendants
Missouri Electric Works Site
Cape Girardeau, Missouri**

Appendix C

**Scope of Work for
Remedial Design and Remedial Action
for Operable Unit 2
Missouri Electric Works Site
Cape Girardeau, Missouri**

1.0 Description of the Work

1.1 Selected Remedy for Operable Unit 2 (groundwater)

The remedy for groundwater contamination at the MEW Site was selected by EPA and identified in the 2005 ROD. The 2005 ROD addresses both the fractured rock and alluvial groundwater regimes. The goals of the selected remedy are:

- Prevent exposure of receptors, both in the upland and wetland areas, to fractured bedrock and alluvial groundwater when contaminants of concern (COCs) concentrations exceed target cleanup levels (TCLs);
- Prevent future use of the aquifer underlying the Site as a source of drinking water;
- Assess and manage the migration of COCs in the fractured bedrock and alluvial groundwater; and
- Assess and manage the migration of COCs from the fractured bedrock into the alluvium.

1.1.1 Fractured Bedrock

The remedial action for groundwater within the fractured bedrock will consist of four components: a technical impracticability (TI) waiver for chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs); institutional controls (ICs), wellhead treatment, and long-term groundwater monitoring.

The TI waiver is needed due to the highly variable and fractured nature of the bedrock; capture of the COCs within the fractured bedrock is neither practicable nor feasible.

The ICs, as anticipated, will be implemented or imposed to prevent exposure to the contaminated groundwater; which could include ICs which are proprietary in nature, designation of the area of groundwater contamination as a “special use” area by the state, use of ordinances, inspection regimes, property notices and/or public information.

Wellhead treatment systems to remove COCs from the drinking water supply will be provided. These systems will be provided for any existing water supply well that becomes impacted by Site COCs and for any new drinking water supply well that could be reasonably expected to have COC contamination.

Long-term monitoring of the fractured bedrock groundwater will be performed. This will be accomplished by collecting groundwater samples from bedrock wells and performing laboratory analyses for COCs. Laboratory analyses expected, for the duration of the monitoring, will include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and PCBs.

Annual maintenance and repair of monitoring wells will be required. Provision for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the remedial action objectives (RAOs) are met or a determination is made that monitoring is no longer necessary.

1.1.2 Alluvium

Continued groundwater monitoring of the alluvium following EPA's issuance of the 2005 ROD indicated that naturally occurring processes are degrading the COCs. Therefore, injection of an agent to enhance bio-degradation of the COCs will not be necessary.

The remedial action for groundwater within the alluvium will consist of three components: ICs, wellhead treatment, and long-term monitoring of the groundwater to verify that the naturally occurring degradation processes continue. The ICs imposed are anticipated to be similar in nature to those for the fractured bedrock groundwater. Well-head treatment will be the same for both groundwater regimes.

Long-term monitoring of the alluvium groundwater will be performed. This will be accomplished by collecting groundwater samples from alluvium wells and performing laboratory analyses for COCs. Laboratory analyses expected will include volatile organic compounds (VOCs), PCBs, and groundwater physical properties. Physical property testing of the groundwater is necessary to confirm that conditions exist for natural biodegradation processes to continue. These analyses will continue until monitoring is no longer required. Annual maintenance and repair of monitoring wells will be required. Provision for the abandonment of the monitoring wells, pursuant to MDNR requirements, at such time as the remedial action objectives (RAOs) are met or a determination is made that monitoring is no longer necessary.

1.2 Five-Year Review Assistance

As the remedial actions for both OU1 and OU2 resulted/are expected to result in hazardous substances, pollutants, or contaminants remaining onsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted every five years. The next five-year review must be conducted on or before September 24, 2009. Five-year reviews are conducted to ensure that remedies are, or continue to be, protective of human health and the environment.

EPA will determine what information is necessary to complete each five-year review. Settling Defendants will conduct any studies and investigations of contaminated soils and groundwater at the Site identified by EPA as necessary to complete the statutory review process.

1.3 Community Interaction Assistance

Interaction with the community will be required. It is anticipated that there will be public availability sessions and public meetings during both the remedial design and remedial action phases of the project and to a lesser extent during the long-term monitoring phase. Settling Defendants should anticipate having a representative in attendance at all such meetings. In addition, EPA may require assistance with the preparation of visual aids, describing the work being performed by the Settling Defendants, for use at these meetings.

2.0 **Scope of Work—Groundwater Operable Unit (OU2)**

The Remedial Design (RD) and Remedial Action (RA) for the contaminated groundwater will consist of the tasks described in the following sections.

2.1 Remedial Design

The RD identifies how the remedial action is to be implemented. The RD will include plans and schedules for development of the following plans required for either the RD or the RA. The RD Work Plan and the associated documents identify how the remedial action will be constructed, identify and locate any new monitoring wells and present a project schedule. The design strategy shall comply with all ARARs and appropriate guidance documents. A list of regulations and guidance documents that pertain to the remedial design process is attached. Environmental impacts, as a result of design implementation, shall be minimized to the extent practicable. Since there are two groundwater regimes, each groundwater regime shall be fully addressed in all required plans. The development and submission of the following documents are required:

1. **OU2 RD Work Plan** will provide a description of what other documents will be developed, what information will be gathered, how data will be obtained and used, and when deliverables will be submitted. In addition the Plan will provide for regular meetings with the Project Coordinators for the Settling Defendants, MDNR and EPA. Unless otherwise agreed upon, these meetings will be held, at a minimum, on a quarterly basis.
2. **Quality Assurance Project Plan (QAPP)** shall be prepared in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall, at a minimum, reflect the use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan (NCP).

3. **Health and Safety Plan (HASP)** shall be prepared and submitted to the EPA Project Coordinator for review. The HASP shall meet the requirements of the federal, state, and local laws, regulations, and other requirements, including OSHA regulations at 29 C.F.R. § 1910.120. The HASP shall contain hospital route maps and be available and centrally located for all personnel to access during emergencies. The HASP shall describe ongoing requirements, such as daily safety briefings.

Settling Defendants shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with this SOW. Settling Defendants shall comply, and shall secure compliance by its employees, agents, and lower-tier subcontractors, with all applicable health and safety laws, regulations, and other requirements, including without limitation, Federal OSHA and equivalent OSHA state regulations, City and County ordinances and codes, uniform fire codes, and DOT regulations.

Settling Defendants shall establish and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, and notifying the owners and users of adjacent properties of potential hazards, as necessary. The contractor shall advise residents to stay away from active remediation areas to the extent possible.

Contractor shall notify the EPA Project Coordinator promptly, in writing, if an assertion of non-compliance with the HASP has been made against the Settling Defendants in connection with its performance of the Work.

Settling Defendants shall be responsible for coordinating the dissemination and exchange of Material Safety Data Sheets and other hazard communication information required to be made available to or exchanged between or among employees at the site in accordance with requirements of Federal, State, and local ordinances, laws or regulations.

4. **Field Sampling Plan (FSP)** that defines the sampling and data collection methods that shall be used for OU2 RD. Sampling needs for the human health and ecological risk assessments shall be included. The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis, and a breakdown of samples to be analyzed at a laboratory using procedures equivalent to those of the Contract Laboratory Program (CLP); the name and location of the proposed laboratory; and justification for the decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team,

unfamiliar with the OU2 RD would be able to gather the samples and field information required.

5. **RD Quality Assurance Project Plan (QAPP)** shall describe all activities that will be performed to ensure a quality product. This will include quality assurance and quality control measures.
6. **Construction Quality Assurance Project Plan (CQAPP)** shall describe what measures will be taken to ensure that a quality product is the result of all construction activities.
7. **Design Plans and Specifications** shall identify all pertinent information needed to implement the RA as described in the 2005 ROD. This information shall include at a minimum, all monitoring well locations, monitoring frequency, locations of new wells (if needed), and associated monitoring well construction and development. In addition, the cost estimate developed in the 2005 Groundwater Design Investigation and Fractured Bedrock and Alluvium Groundwater Remediation Feasibility Study shall be refined. This refinement shall reflect the more detailed and accurate design plans and specifications being developed. The cost estimate shall be submitted with the Final Design Document.
8. **Preliminary Remedial Design** for each groundwater regime will be submitted when the design efforts are approximately 40 percent complete. At this stage, refined information describing existing conditions of each groundwater regime at the Site will have been obtained. The preliminary design will reflect a level of effort such that the technical requirements of the project have been addressed and outlined so that they can be reviewed to assure that the final design will provide an operable and useable RA. Supporting documentation will be provided with the design documents defining the functional aspects of the RA. Due to the relatively straightforward nature of the anticipated groundwater designs, other Intermediate Design Documents are not anticipated to be necessary. However, any value engineering design documents should be developed and submitted when developed.
9. **Final Remedial Design** will be submitted when all design activities are complete. It shall include reproducible drawings and specifications developed during the design.
10. **Long-Term Monitoring Plan (LTP)** shall identify how long-term monitoring is to be conducted. Long-term optimization will be developed and presented for EPA and MDNR approval. Specifically, the LTP will identify the frequency of sampling, the analyses to be performed, and the method of sample collection for each groundwater regime.

11. **Well-head Protection Provisions Implementation Plan** shall identify the conditions, for each groundwater regime, which will necessitate the implementation of well-head protection. The plan shall identify all steps required to implement well-head protection.
12. **Institutional Controls Implementation Plan** shall identify all institutional controls (ICs) to be imposed and the methods by which each IC will be implemented and monitored.
13. **Operation and Maintenance Plan** shall describe how monitoring wells will be sampled, maintained and replaced, as necessary. The Plan shall also address operation and maintenance issues for well-head protection.
14. **Remedial Design Bid Documents** shall be developed with sufficient detail and description to allow potential contractors to prepare bids to perform the work.
15. **Implementation and Completion** schedule shall identify the when the required documents will be prepared and submitted for EPA and MDNR review.

2.2 Remedial Action

The RA implements the RD. Plans developed during the design phase will be used to construct and provide long-term monitoring of the RA. Specific details identifying how and when the plans developed during the design phase shall be used during the remedial action and long-term monitoring shall be provided to EPA. Since there are two groundwater regimes, each groundwater regime shall be fully addressed in all required plans. Some documents developed during the design phase may need little or no modification, but are listed below for completeness. The development and submission of the following documents are required:

1. **OU2 RA Work Plan** will provide a detailed description of the additional documents that will be developed and used during the RA, a schedule for the completion of the RA, and a detailed description of the approach for the remediation and construction activities in accordance with the final specifications, ARARs, guidance and the 2005 ROD. A list of regulations and guidance documents for remedial actions is attached. A schedule for monitoring events, methods used to select the RA contractor, methods for satisfying permit requirements, procedures and plans for decontamination of equipment and disposal of contaminated materials, if any, and methodology for implementation of the Long-Term monitoring Plan and Operations and Maintenance Plan shall be included in the work plan.
2. **Construction Quality Assurance Work Plan (CQAPP)** will identify the quality assurance program that will be used during the RA. This plan shall

identify the responsibility and authority of all organizations (i.e., technical consultants, construction firms, etc.) and key personnel involved in the construction and implementation of the remedial systems. A Construction Quality Assurance (CQA) Officer and the necessary supporting inspection staff will be identified.

3. **Inspection Activities Plan** will identify all observations and tests that will be used to monitor the construction and long-term monitoring components of the RA. The inspections will ensure compliance with all health and safety procedures. In addition to oversight inspections, the following activities will also be conducted:
 - Preconstruction Inspection and Meeting will be held onsite. The purpose of the meeting is to: review methods for documenting and reporting inspection data; review methods for distributing and storing documents and reports; review work area security and safety protocol; discuss any appropriate modifications to the CQAPP and ensure that site-specific modifications are addressed; and conduct the Site walk to verify design criteria, plans and specifications are understood.
 - Oversight of field sampling activities and collection of split samples during monitoring events will be conducted.
 - Interim Final RA Inspection will be conducted after EPA has been notified that preliminary project completion has been attained. This inspection will be made to determine whether the RA is complete and consistent with contract documents and the EPA approved RA Work Plan. Any outstanding construction items discovered during this inspection will be identified and noted. An Interim Final Inspection Report will be prepared that documents all outstanding issues and the actions to be taken to resolve those issues. A schedule for resolving these issues will be included.
 - Final RA Inspection will be conducted after EPA has been notified that all outstanding issues identified during the Interim Final RA Inspection have been addressed. This will consist of a walk-through inspection of the Site. The Interim Final RA Inspection Report will be used as a checklist with the Final RA Inspection focusing those issues identified in the Interim Final RA Report.
 - The Settling Defendants shall use quality assurance, quality control and chain of custody procedures for all environmental design, compliance and monitoring samples. The sampling activities, sample size, sample locations, frequency of testing, acceptance and rejection criteria, and plans for correcting problems as addressed in the project specifications will be presented in the CQAPP, which is consistent with this scope of work (SOW), the National Contingency Plan (NCP), and applicable guidance documents.
 - Reporting requirements for CQA activities will be described in detail in the CQAPP. This will include such items as daily summary reports,

design acceptance reports, and final documentation. Provisions for the final storage of all records will be presented in the CQAPP.

4. **Health and Safety Plan (HASP)** shall be prepared and submitted to the EPA Project Coordinator for review. The HASP shall meet the requirements of the federal, state, and local laws, regulations, and other requirements, including OSHA regulations at 29 C.F.R. § 1910.120. The HASP shall contain hospital route maps and be available and centrally located for all personnel to access during emergencies. The HASP shall describe ongoing requirements, such as daily safety briefings.

Settling Defendants shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with this SOW. Settling Defendants shall comply, and shall secure compliance by its employees, agents, and lower-tier subcontractors, with all applicable health and safety laws, regulations, and other requirements, including, without limitation, Federal OSHA and equivalent OSHA state regulations, City and County ordinances and codes, uniform fire codes, and DOT regulations.

Settling Defendants shall establish and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, and notifying the owners and users of adjacent properties of potential hazards, as necessary. The contractor shall advise residents to stay away from active remediation areas to the extent possible.

Contractor shall notify the EPA Project Coordinator promptly, in writing, if an assertion of non-compliance with the HASP has been made against the Settling Defendants in connection with its performance of the Work.

Settling Defendants shall be responsible for coordinating the dissemination and exchange of Material Safety Data Sheets and other hazard communication information required to be made available to or exchanged between or among employees at the site in accordance with requirements of Federal, State, and local ordinances, laws or regulations.

5. **Monitoring Well Installation Procedures** will describe, in detail, how monitoring wells will be located, installed, developed and maintained. Appropriate charts, figures and other pertinent information will also be provided.
6. **Field Sampling and Analysis Plan (FSP)** defines the sampling and data collection methods that shall be used for OU2 RA and long-term monitoring activities. Sampling needs for the five-year reviews shall be included. The five-year review sampling events may involve several

environmental media (i.e., soil, groundwater, surface water, sediment, biota). The FSP shall include sampling objectives; sample locations and frequency; sampling equipment and procedures; sample handling and analysis, and a breakdown of samples to be analyzed at a laboratory using procedures equivalent to those of the Contract Laboratory Program (CLP); the name and location of the proposed laboratory; and justification for the decisions. The FSP shall consider the use of all existing data and shall justify the need for additional data whenever existing data will meet the same objective. The FSP shall be written so that a field sampling team, unfamiliar with the OU2 RA or five-year reviews would be able to gather the samples and field information required.

7. **Quality Assurance Project Plan (QAPP)** shall be prepared in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired Data Quality Objectives (DQOs). The DQOs shall, at a minimum, reflect the use of analytical methods for identifying contamination and addressing contamination consistent with the levels for remedial action objectives identified in the National Contingency Plan (NCP).
8. **Long-Term Monitoring Plan (LTP)** shall identify how long-term monitoring is to be conducted. Long-term optimization will be developed and presented for EPA and MDNR approval. Specifically, the LTP will identify the frequency of sampling, the analyses to be performed, and the method of sample collection for each groundwater regime.
9. **Institutional Controls Implementation and Assurance Plan (ICIAP)** shall identify all institutional controls (ICs) to be imposed and the methods by which each IC will be implemented and monitored. The ICIAP will also provide the mechanism by which EPA is assured that all ICs identified have been implemented and are in place.
10. **Well-Head Protection Contingency Plan** shall identify the conditions, for each groundwater regime, which will necessitate the implementation of well-head protection. The plan shall identify all steps required to implement well-head protection.
11. **Submittals and Reports** shall be made in accordance with the criteria identified as follows:
 - Monthly reports will be submitted to EPA and MDNR on or before the 15 day of the following month during the design and construction phases. These reports shall summarize all data collected; identify work completed and deliverables submitted; identify any deviations from approved plans and the reasons why the deviations were made;

- summarize all contacts with representatives of the public; changes in personnel; projected work for the next reporting period and copies of all daily reports, inspection reports, laboratory/monitoring data, etc.
 - Reports will be submitted to EPA and MDNR 90 days after each sampling event during Long-Term Monitoring.
12. **Operation and Maintenance Plan (O&M Plan)** shall describe how monitoring wells will be sampled, maintained and replaced, as necessary. The O&M Plan shall also address operation and maintenance issues for well-head protection. The O&M Plan should provide sufficient detail such that someone unfamiliar with the project could understand what work is required, why it is needed, where the sampling or other work is to be performed, how the work efforts are to be reported and when (frequency) the work is to be reported.
 13. **Cessation of Action Plan** will identify the criteria to be used to make the recommendation that Long-Term monitoring cease.
 14. **Schedule** of work and anticipated monitoring events will be identified and followed. If deviations occur, those deviations shall be identified and the rationale or justification for each deviation submitted to EPA for approval.
 15. **Remedial Action Report** shall be prepared after all RD, RA and one year of operation of the monitoring system have been completed. The report shall provide a detailed summary of all actions taken to perform the work in accordance with the terms of the 2005 ROD, this SOW, and the Consent Decree. This report shall be submitted to EPA and MDNR within 90 days of the Final RA Inspection.
 16. **Remedial Action Certification** will be submitted to EPA and MDNR within 90 days after the completion of the first full year of the groundwater monitoring systems. The certification shall be provided by a qualified professional (e.g., professional engineer, certified professional geologist, etc.) representing the construction contractor.

2.3 Five-Year Review Assistance

As indicated previously, Settling Defendants may be asked to provide assistance to EPA in performing statutory five-year reviews. It is anticipated that the field sampling plans, quality assurance project plans and health and safety plans developed for the Groundwater RD/RA and the Wetland Remedial Investigation (RI) and Feasibility Study (FS) can be developed such that any additional sampling of groundwater, surface water, soil or sediment needed for a five-year review can be accomplished without development of separate documents.

A description of how data will be collected, a schedule identifying how long it will take to collect, analyze and report data after receipt of a request from EPA will be required. Report submittals for each request made by EPA for five-year review assistance shall be required.

2.4 Community Interaction Assistance, as required

Settling Defendants may be asked to assist EPA with work-related visuals, handouts, etc. for meetings with the public. This assistance may include attendance at the meetings as well. During the course of the RD and RA for OU2, it is anticipated that several availability sessions could be held and at least one Public Meeting. Settling Defendants shall identify how they will respond to an EPA request. The amount of advance notification needed to prepare simple, complex and very complex visuals or handouts should be identified.

3.0 **Summary of Submissions and Schedules**

The following was agreed upon for the schedule for submittal of deliverables pursuant to the Consent Decree and this Scope of Work.

Deliverable	Due Date/Completion Date
Selection of RD Contractor	30 days after the effective date of the Consent Decree (ED of CD)
draft Remedial Design Work Plan	60 days after the ED of CD
draft Health and Safety Plan	
draft Field Sampling and Analysis Plan	
draft Quality Assurance Project Plan	
draft Design Plans and Specifications	
Final Remedial Design Work Plan	30 days after receipt of EPA comments
Health and Safety Plan	
Field Sampling and Analysis Plan	
Quality Assurance Project Plan	
Draft Construction Quality Assurance Project Plan	
Design Plans and Specifications	45 days after RD Work Plan approval
Preliminary Remedial Design	
draft Long-Term Monitoring Plan	
draft Well-head Protection Implementation Plan	
draft Institutional Controls Implementation Plan	
draft Operation and Maintenance Plan	45 days after receipt of EPA comments
draft Implementation and Completion schedule	
Final Remedial Design	
Long-Term Monitoring Plan	
Well-head Protection Implementation Plan	
Institutional Controls Implementation Plan	
Operation and Maintenance Plan	
Implementation and Completion schedule	

Deliverable	Due Date/Completion Date
Remedial Design Bid Documents	30 days after RD approval
Selection of RA Contractor	45 days after solicitation
draft Remedial Action Work Plan	30 days after RA Contractor approval
draft Construction Quality Assurance Project Plan	
draft Inspection Activities Plan	30 days after RA Contractor approval
draft Health and Safety Plan	
draft Monitoring Well Installation Procedures	
draft Field Sampling and Analysis Plan	
draft Quality Assurance Project Plan	
draft Long-Term Monitoring Plan	
draft Institutional Controls Implementation Plan	
draft Well-head Protection Contingency Plan	
draft Operations and Maintenance Plan	
draft Cessation of Action Plan	
draft Schedule	
Final Remedial Action Work Plan	30 days after receipt of EPA comments
Construction Quality Assurance Project Plan	
Inspection Activities Plan	
Health and Safety Plan	
Monitoring Well Installation Procedures	
Field Sampling and Analysis Plan	
Quality Assurance Project Plan	
Long-Term Monitoring Plan	
Institutional Controls Implementation Plan	
Well-head Protection Contingency Plan	
Operations and Maintenance Plan	
Cessation of Action Plan	
Schedule	
Remedial Action Report	60 days after receipt of analytical data from 1 st annual sampling event
Remedial Action Certification	60 days after receipt of analytical data that indicates that action levels have been attained for 3 consecutive years
Monthly Reports	10 th of each month when RD or RA work is performed the preceding month
draft Five-Year Review Assistance Plan	45 days after ED of CD
Five-Year Review Assistance Plan	45 days after receipt of EPA comments
draft Community Interaction Assistance Plan	45 days after ED of CD
Community Interaction Assistance Plan	45 days after receipt of EPA comments
Five-Year Review Data Submittal	on or before June 1, 2009 June 1, 2014 June 1, 2019 June 1, 2024 June 1, 2029

Deliverable	Due Date/Completion Date
	June 1, 2034
	June 1, 2039

Appendix D

**Scope of Work for
Remedial Investigation and Feasibility Study
for Operable Unit 3 (Wetland Area)
Missouri Electric Works Site
Cape Girardeau, Missouri**

TASK 1 - SCOPING (RI/FS Guidance, Chapter 2)

Scoping is the initial planning process of the remedial investigation/feasibility study (RI/FS). During this phase, the site-specific objectives of the RI/FS, including the preliminary remediation goals (PRGs), are determined. In addition to developing the site specific objectives of the RI/FS, EPA will determine a general management approach for the Site. Consistent with the general management approach, the specific project scope will be planned by Settling Defendants and EPA. Settling Defendants will document the specific project scope in a work plan. Because the work required to perform a RI/FS is not fully known at the onset, and is phased in accordance with a site's complexity and the amount of available information, it may be necessary to modify the work plan during the RI/FS to satisfy the objectives of the study.

a. Site Background (2.2)

Settling Defendants will gather and analyze the existing Site background information to assist in planning the scope of the RI/FS.

Collect and analyze existing data and document the need for additional data (2.2.2; 2.2.6; 2.2.7)

Before planning RI/FS activities, all existing Site data will be thoroughly compiled and reviewed by Settling Defendants. Specifically, this will include presently available data relating to the varieties and quantities of hazardous substances at the Site, and past disposal practices. This will also include results from any previous sampling events that may have been conducted. Settling Defendants will refer to Table 2-1 of the RI/FS Guidance for a comprehensive list of data collection information sources. This information will be utilized in determining additional data needed to characterize the site, better define potential applicable or relevant and appropriate requirements (ARARs), and develop a range of preliminarily identified remedial alternatives. Data Quality Objectives (DQOs) will be established subject to EPA approval which specify the usefulness of existing data. Decisions on the necessary data and DQOs will be made by EPA.

Conduct Site Visit

Settling Defendants may conduct a Site visit during the project scoping phase to assist in developing a conceptual understanding of sources and areas of contamination as well as potential exposure pathways and receptors at the Site. During the Site visit Settling Defendants should observe the Site's physiography, hydrology, geology, and demographics, as well as natural resource, ecological and cultural features. This information will be utilized to better scope the project and to determine the extent of additional data necessary to characterize the Site, better define potential ARARs, and

narrow the range of preliminarily identified remedial alternatives.

b. Project Planning (2.2)

Once Settling Defendants have collected and analyzed existing data and conducted a Site visit, the specific project scope will be planned. Project planning activities include those tasks described below as well as identifying data needs, developing a work plan, designing a data collection program, and identifying health and safety protocols. Settling Defendants will meet with EPA, upon EPA's request, regarding the following activities and before the drafting of the scoping deliverables below. These tasks are described in Section c. of this task since they result in the development of specific required deliverables.

Refine and document preliminary remedial action objectives and alternatives (2.2.3)

Once existing site information has been analyzed and an understanding of the potential Site risks has been determined by EPA, Settling Defendants will review and, if necessary, refine the remedial action objectives that have been identified for each actually or potentially contaminated medium. The revised remedial action objectives will be documented in a technical memorandum and subject to EPA approval. Settling Defendants will then identify a preliminary range of broadly defined potential remedial action alternatives and associated technologies. The range of potential alternatives should encompass where appropriate, alternatives in which treatment significantly reduces the toxicity, mobility, or volume of the waste; alternatives that involve containment with little or no treatment; and a no-action alternative.

Document the need for treatability studies (2.2.4)

If remedial actions involving treatment have been identified by Settling Defendants or EPA, treatability studies will be required except where the respondent can demonstrate to EPA's satisfaction that they are not needed. Where treatability studies are needed, initial treatability testing activities (such as research and study design) will be planned to occur concurrently with Site characterization activities (see Tasks 3 and 5).

Begin preliminary identification of potential ARARs (2.2.5)

Settling Defendants will conduct a preliminary identification of potential state and federal ARARs (chemical-specific, location-specific, and action-specific) to assist in the refinement of remedial action objectives, and the initial identification of remedial alternatives and ARARs associated with particular actions. ARAR identification will continue as Site conditions, contaminants, and remedial action alternatives are better defined.

c. Scoping Deliverables (2.3)

At the conclusion of the project planning phase, Settling Defendants shall submit a RI/FS work plan, a sampling and analysis plan, and a Site health and safety plan. The RI/FS work plan and sampling and analysis plan must be reviewed and approved by EPA prior to the initiation of field activities.

RI/FS Work Plan (2.3.1)

A work plan documenting the decisions and evaluations completed during the scoping process will be submitted to EPA for review and approval. The work plan should be developed in conjunction with the sampling and analysis plan and the Site health and safety plan, although each plan may be delivered under separate cover. The work plan will include a comprehensive description of the work to be performed, including the methodologies to be utilized, as well as a corresponding schedule for completion. In addition, the work plan must include the rationale for performing the required activities. Specifically, the work plan will present a statement of the problem(s) and potential problem(s) posed by the Site and the objectives of the RI/FS. Furthermore, the plan will include a Site background summary setting forth the Site description including the geographic location of the Site, and to the extent possible, a description of the Site's physiography, hydrology, geology, demographics, ecological, cultural and natural resource features; a synopsis of the Site history and a description of previous responses that have been conducted at the Site by local, state, federal, or private parties; a summary of the existing data in terms of physical and chemical characteristics of the contaminants identified, and their distribution among the environmental media at the Site. In addition, the plan will include a description of the Site management strategy developed by EPA during scoping; a preliminary identification of remedial alternatives and data needs for evaluation of remedial alternatives. The plan will reflect coordination with treatability study requirements (see Tasks 1 and 4). It will include a process for and manner of identifying Federal and state ARARs (chemical-specific, location-specific and action-specific).

Finally, the major part of the work plan is a detailed description of the tasks to be performed, information needed for each task and for the baseline risk assessment, information to be produced during and at the conclusion of each task, and a description of the work products that will be submitted to EPA. This includes the deliverables set forth in the remainder of this scope of work; a schedule for each of the required activities which is consistent with the RI/FS guidance; and a project management plan, including a data management plan (e.g., requirements for project management systems and software, minimum data requirements, data format and backup data management), monthly reports to EPA and meetings and presentations to EPA at the conclusion of each major phase of

the RI/FS. Settling Defendants will refer to Appendix B of the RI/FS Guidance for a comprehensive description of the contents of the required work plan. Because of the unknown nature of the Site and iterative nature of the RI/FS, additional data requirements and analyses may be identified throughout the process. Settling Defendants will submit a technical memorandum documenting the need for additional data, and identifying the DQOs whenever such requirements are identified. In any event, Settling Defendants are responsible for fulfilling additional data and analysis needs identified by EPA consistent with the general scope and objectives of this RI/FS.

Sampling and Analysis Plan (2.3.2)

Settling Defendants will prepare a sampling and analysis plan (SAP) to ensure that sample collection and analytical activities are conducted in accordance with technically acceptable protocols and that the data meet DQOs. The SAP provides a mechanism for planning field activities and consists of a field sampling plan (FSP) and a quality assurance project plan (QAPP). The FSP will define in detail the sampling and data-gathering methods that will be used on the project. It will include sampling objectives, sample location and frequency, sampling equipment and procedures, and sample handling and analysis. The QAPP will describe the project objectives and organization, functional activities, and quality assurance and quality control (QA/QC) protocols that will be used to achieve the desired DQOs. The QAPP will be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans (QA/R-5)" (EPA/240/B-01/003, March 2001) and "EPA Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA/600/R-98/018, February 1998). The DQOs will at a minimum reflect use of analytic methods to identifying contamination and remediating contamination consistent with the levels for remedial action objectives identified in the proposed National Contingency Plan, pages 51425-26 and 51433 (December 21, 1988). In addition, the QAPP will address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications. Field personnel should be available for EPA QA/QC training and orientation where applicable.

Settling Defendants will demonstrate, in advance to EPA's satisfaction, that each laboratory it may use is qualified to conduct the proposed work. This includes use of methods and analytical protocols for the chemicals of concern in the media of interest within detection and quantification limits consistent with both QA/QC procedures and DQOs approved in the QAPP for the Site by EPA. The laboratory must have and follow an approved QA program. If a laboratory not in the Contract Laboratory Program (CLP) is selected, methods consistent with CLP methods that would be used at this Site for the purposes proposed and QA/QC procedures approved by EPA will be used. Settling Defendants shall only use laboratories which have a documented Quality Assurance Program which complies with ANSI/ASQC E-4 1994, "Specification and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology

Programs," (American National Standard, January 5, 1995) and "EPA Requirements for Quality Management Plans (QA/R-2)" (EPA/240/B-01-002, March 2001) or equivalent documentation as determined by EPA. If the laboratory is not in the CLP program, a laboratory QA program must be submitted for EPA review and approval. EPA may require that Settling Defendants submit detailed information to demonstrate that the laboratory is qualified to conduct the work, including information on personnel qualifications, equipment and material specifications. Settling Defendants will provide assurances that EPA has access to laboratory personnel, equipment and records for sample collection, transportation and analysis.

Site Health and Safety Plan (2.3.3)

A health and safety plan will be prepared in compliance with OSHA regulations and protocols. The health and safety plan will include the 11 elements described in the RI/FS Guidance, such as a health and safety risk analysis, a description of monitoring and personal protective equipment, medical monitoring, and Site control. EPA does not "approve" the health and safety plan, but rather EPA reviews, and provides comment on it, to ensure that all necessary elements are included, and that the plan provides for the protection of human health and the environment.

TASK 2 - COMMUNITY RELATIONS

The development and implementation of community relations activities are the responsibility of EPA. The critical community relations planning steps performed by EPA include conducting community relations plan. Although implementation of the community relations plan is the responsibility of EPA, Settling Defendants may assist as requested by EPA.

Settling Defendants will prepare two or more baseline risk assessment memoranda which will summarize the toxicity assessment and components of the baseline risk assessment. These memoranda will be made available to all interested parties for comment and will be placed in the Administrative Record for the Site. (EPA is not required, however, to formally respond to significant comments except during the formal public comment period on the proposed plan.) The extent of the Settling Defendants' involvement in community relations activities is left to the discretion of EPA. Settling Defendants' community relations responsibilities, if any, will be specified in the community relations plan. All community relations activities will be subject to oversight by EPA.

TASK 3 - SITE CHARACTERIZATION (RI/FS Guidance, Chapter 3)

As part of the RI, Settling Defendants will perform the activities described in this task, including the preparation of a Site characterization summary and RI report. The overall objective of site characterization is to describe areas of the Site that may pose a threat to human health or the environment. This is accomplished by first determining the Site's physiography, geology, and hydrology. Surface and subsurface pathways of migration will be defined. Settling Defendants will identify the sources of contamination and define the nature, extent, and volume of the sources of contamination, including their physical and chemical constituents as well as their concentrations at incremental locations to background in the affected media. Settling Defendants will also investigate the extent of migration of this contamination as well as its volume and any changes in its physical or chemical characteristics, to provide for a comprehensive understanding of the nature and extent of contamination at the Site. Using this information, contaminant fate and transport is then determined and projected.

During this phase of the RI/FS, the work plan, SAP, and health and safety plan are implemented. Field data are collected and analyzed to provide the information required to accomplish the objectives of the study. Settling Defendants will notify EPA, as required by the Consent Decree, in advance of the field work regarding the planned dates for field activities, including ecological field surveys, field lay out of the sampling grid, excavation, installation of wells, initiating sampling, installation and calibration of equipment, pump tests, and initiation of analysis and other field investigation activities. Settling Defendants will demonstrate that the laboratory and type of laboratory analyses that will be utilized during Site characterization meets the specific QA/QC requirements and the DQOS of the Site investigation as specified in the SAP. In view of the unknown Site conditions, activities are often iterative, and to satisfy the objectives of the RI/FS it may be necessary for Settling Defendants the work specified in the initial work plan. In addition to the deliverables below, Settling Defendants will provide a monthly progress report and participate in meetings at major points in the RI/FS.

a. Field Investigation (3.2)

The field investigation includes the gathering of data to define Site physical and biological characteristics, sources of contamination, and the nature and extent of contamination at the site. These activities will be performed will be performed by Settling Defendants in accordance with the plan and SAP. At a minimum, this shall address the following:

Implement and document field support activities (3.2.1)

Settling Defendants will initiate field support activities following approval of the work plan and SAP. Field support activities may include obtaining access to the Site, scheduling, and procuring equipment, office space, laboratory services, and/or contractors. As required by the Consent Decree, Settling Defendants will notify EPA prior to initiating field support activities so that EPA may adequately schedule oversight

tasks. Settling Defendants will also notify EPA in writing upon completion of field support activities.

Investigate and define site physical and biological characteristics (3.2.2)

Settling Defendants will collect data on the physical and biological characteristics of the Site and its surrounding areas including the physical physiography, geology, and hydrology, and specific physical characteristics identified in the work plan. This information will be ascertained through a combination of physical measurements, observations, and sampling efforts and will be utilized to define potential transport pathways and human and ecological receptor populations. In defining the Site's physical characteristics Settling Defendants will also obtain sufficient engineering data (such as pumping characteristics) for the projection of contaminant fate and transport, and development and screening of remedial action alternatives, including information to assess treatment technologies.

Define sources of contamination (3.2.3)

Settling Defendants will locate each source of contamination. For each location, the areal extent and depth of contamination will be determined by sampling at incremental depths on a sampling grid. The physical characteristics and chemical constituents and their concentrations will be determined for all known and discovered sources of contamination.

Settling Defendants shall conduct sufficient sampling to define the boundaries of the contaminant sources to the level established in the QAPP and DQOs. Defining the source of contamination will include analyzing the potential for contaminant release (e.g., long term leaching from soil), contaminant mobility and persistence, and characteristics important for evaluating remedial actions, including information to assess treatment technologies.

Describe the nature and extent of contamination (3.2.4)

Settling Defendants will gather information to describe the nature and extent of contamination as a final step during the field investigation. To describe the nature and extent of contamination, Settling Defendants will utilize information on Site physical and biological characteristics and sources of contamination to give a preliminary estimate of the contaminants that may have migrated. Settling Defendants will then implement an iterative monitoring program and any study program identified in the work plan or SAP such that by using analytical techniques sufficient to detect and quantify the concentration of contaminants, the migration of contaminants through the various media at the Site can be determined. In addition, Settling Defendants will gather data for calculations of contaminant fate and transport. This process is continued until the area and depth of

contamination are known to the level of contamination established in the QAPP plan and DQOs. EPA will use the information on the nature and extent of contamination to determine the level of risk presented by the site. Settling Defendants will use this information to help to determine aspects of the appropriate remedial action alternatives to be evaluated.

b. Data Analysis (3.4)

Evaluate site characteristics (3.4.1)

Settling Defendants will analyze and evaluate the data to describe: (1) Site physical and biological characteristics, (2) contaminant source characteristics, (3) nature and extent of contamination and (4) contaminant fate and transport. Results of the Site physical characteristics, source characteristics, and extent of contamination analyses are utilized in the in the analysis of contaminant fate and transport. The evaluation will include the actual and potential magnitude of releases from the sources, and horizontal and vertical spread of contamination as well as mobility and persistence of contaminants. Where modeling is appropriate, such models shall be identified to EPA in a technical memorandum prior to their use. All data and programming, including any proprietary programs, shall be made available to EPA together with a sensitivity analysis. The RI data be presented in a format (i.e., computer disc or equivalent). (See "Guidance for Data Useability in Risk Assessment" - OSWER Directive # 9285.7-05 - October 1990.) Also, this evaluation shall any information relevant to Site characteristics necessary for evaluation of the need for remedial action in the baseline risk assessment and for the development and evaluation of remedial alternatives. Analysis of data collected for Site characterization will meet the DQOs developed in the QAPP plan stated in the SAP (or revised during the RI).

c. Data Management Procedures (3.5)

Settling Defendants will consistently document the quality and validity of field and laboratory data compiled during the RI.

Document field activities (3.5.1)

Information gathered during Site characterization will be consistently documented and adequately recorded by Settling Defendants in well maintained field logs and laboratory reports. The method(s) of documentation must be specified in the work plan and/or the SAP. Field logs must be utilized to document observations, measurements, and significant events that have occurred during field activities. Laboratory reports must document sample custody, analytical responsibility, analytical results, adherence to

prescribed protocols, nonconformity events, corrective measures, and/or data deficiencies.

Maintain sample management and tracking (3.5.2; 3.5.3.)

Settling Defendants will maintain field reports, sample shipment records, analytical results, and QA/QC reports to ensure that only validated analytical data are reported and utilized in the evaluation of remedial alternatives. Analytical results developed under the work plan will not be included in any Site characterization reports unless accompanied by or cross-referenced to a corresponding QA/QC report. In addition, Settling Defendants will establish a data security system to safeguard chain-of custody forms and other project records to prevent loss, damage, or alteration of project documentation.

d. Site Characterization Deliverables (3.7)

Settling Defendants will prepare the preliminary Site characterization summary and the remedial investigation report.

Preliminary Site Characterization Summary (3.7.2)

After completing field sampling and analysis, Settling Defendants will prepare a concise characterization summary. This summary will review the investigative activities that have taken place, and describe and display Site data documenting the location and characteristics of surface and subsurface feature and contamination at the Site including the affected medium, types, location types, physical state, concentration of contaminants and quantity. In addition, the location, dimensions, physical condition and varying concentrations of each contaminant throughout each source and the extent of contaminant migration through each of the affected media will be documented. The Site characterization summary will provide EPA with a preliminary reference for evaluating the development and screening of remedial alternatives and the refinement and identification of ARARs.

Remedial Investigation (RI) (3.7.3)

Settling Defendants will prepare and submit a draft RI report to EPA for review and approval. This report shall summarize results of field activities to characterize the site, sources of contamination and the fate and transport of contaminants. Settling Defendants will refer to the RI/FS Guidance for an outline of the report format and contents. Following comment by EPA, Settling Defendants will prepare a final RI report which satisfactorily addresses EPA's comments.

TASK 4 - TREATABILITY STUDIES (RI/FS Manual, Chapter 5)

Treatability testing will be performed by Settling Defendants, as required by EPA, to assist in the detailed analysis of alternatives. In addition, if applicable, testing results and results and operating conditions will be used in the detailed design of the selected remedial technology. The following activities will be performed by Settling Defendants.

a. Determination of Candidate Technologies and of the Need for Testing (5.2; 5.4)

Settling Defendants will identify in a technical memorandum, subject to EPA review and approval, candidate technologies for a treatability studies program during project planning (Task 1). The listing of candidate technologies will cover the range of technologies required for alternatives analysis (Task 6 a.) The specific data requirements for the testing program will be determined and refined during Site characterization and the development and screening of remedial alternatives (Tasks 2 and 6, respectively).

Conduct literature survey and determine the need for treatability testing (5.2)

Settling Defendants will conduct a literature survey to gather information on performance, relative costs, applicability, removal efficiencies, operation and maintenance (O&M) requirements, and implementability of candidate technologies. If practical candidate technologies have not been sufficiently demonstrated, or cannot be adequately evaluated, or cannot be adequately evaluated for the Site on the basis of available information, treatability testing will be conducted. Where it is determined by EPA that treatability testing is required, and unless Settling Defendants can demonstrate to EPA's satisfaction that they are not needed, Settling Defendants will submit a scope of work to EPA outlining the steps and data necessary to evaluate and initiate the treatability testing program.

Evaluate treatability studies (5.4)

Once a decision has been made to perform treatability studies, Settling Defendants and EPA will decide on the type of treatability testing to use (e.g., bench versus pilot). Because of the time required to design, fabricate, and install pilot scale equipment as well as performed testing for various operating conditions, the decision to perform pilot testing should be made as early in the process as possible or minimize potential delays of the FS.

To assure that a treatability testing program is completed on time, and with accurate results, Settling Defendants will either submit a separate treatability testing work plan or an amendment to the original site work plan EPA review and approval.

b. Treatability Testing and Deliverables (5.5; 5.6; 5.8)

The deliverables that are required, in addition to the memorandum identifying candidate

technologies, where treatability testing is conducted include a work plan, a sampling and analysis plan, and a final treatability evaluation report. EPA may also require a treatability study and safety plan, where appropriate.

Treatability testing work plan (5.5)

Settling Defendants will prepare a treatability testing work plan or amendment to the original Site work plan for EPA review and approval describing the Site background, remedial technology(ies) to be tested, test objectives, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety, and residual waste management. The DQOs for treatability testing should be documented as well. If pilot scale treatability testing is to be performed, the pilot-scale work plan will describe pilot plant installation and start-up, pilot plant operation and maintenance procedures, operating conditions to be tested, a sampling plan to determine pilot plant performance, and a detailed health and safety plan. If testing is to be performed off-Site, permitting requirements will be addressed

Treatability study SAP (5.5)

If the original QAPP or FSP is not adequate for defining the activities to be performed during the treatability test, a separate treatability study SAP or amendment to the original site SAP will be prepared by Settling Defendants for EPA review and approval. Task 1, Item c. of this scope of work provides additional information on the requirements of the SAP.

Treatability study health and safety plan (5.5)

If the original health and safety plan is not adequate for defining the activities to be performed during the treatment tests, a separate or amended health and safety plan will be developed by Settling Defendants. Task 1, Item c. of this scope of work provides additional information on the requirements of the health and safety plan. EPA does not "approve" the treatability study health and safety plan.

Treatability study evaluation report (5.6)

Following completion of treatability testing, Settling Defendants will analyze and interpret the testing results in a technical report to EPA. Depending on the sequences of activities, this report may be a part of the RI/FS report or a separate deliverable. The report will evaluate each technology's effectiveness, implementability, cost and actual results as compared with predicted results as compared with predicted results. The report

will also evaluate full scale application of the technology, including a sensitivity analysis identifying the key parameters affecting full-scale operation.

TASK 5 - DEVELOPMENT AND SCREENING OF REMEDIAL ALTERNATIVES **(RI/FS Manual, Chapter 4)**

The development and screening of remedial alternatives is performed to develop an appropriate range of waste management options that will be evaluated. This range of alternatives should include as appropriate, options in which treatment is used to reduce the toxicity, mobility, or volume of wastes, but varying in the types of treatment, the amount treated, and the manner in which long-term residuals or untreated wastes are managed; options involving containment with little or no treatment; options involving both treatment and containment; and a no-action alternative. The following activities will be performed as a function of the development and screening of remedial alternatives.

a Development and Screening of remedial Alternatives (4.2)

Settling Defendants will begin to develop and evaluate a range of appropriate waste management options that a minimum ensure protection of human health and the environment, concurrent with the RI Site characterization task.

Refine and document remedial action objectives (4.2.1)

Based on EPA's baseline risk assessment, Settling Defendants will review and if necessary modify the Site-specific remedial action objectives, especially the PRGs. The revised PRGs will be documented in a technical memorandum that will be and approved by EPA. These modified PRGs will specify the contaminants and media of interest, exposure pathways and receptors, and an acceptable contaminant level or range of levels (at particular locations for each exposure route).

Develop general response action (4.2.2)

Settling Defendants will develop general actions for each medium of interest defining containment, treatment, excavation, pumping, or other actions, singly or in combination, to satisfy the remedial action objectives.

Identify areas or volumes of media (4.2.3)

Settling Defendants will identify areas or volumes of media to which general response actions may apply, taking into account requirements for protectiveness as identified in the remedial action objectives. The chemical and physical characterization of the Site will

also be taken into account.

Identify, screen, and document remedial technologies (4.2.4; 4.2.5)

Settling Defendants will identify and evaluate technologies applicable to each general response action to eliminate those that cannot be implemented at the Site. The general response action will be refined to specify remedial technology types. Technology process options for each of the technology types will be identified either concurrent with the identification of technology types, or following the screening of the considered technology types. Process options will be evaluated on the basis of effectiveness, implementability, and cost factors to select and retain one or, if necessary, more representative processes for each or, if necessary, more representative processes for each technology type. The technology types and process options will be summarized for inclusion in a technical memorandum. The reasons for eliminating alternatives must be specified.

Assemble and document alternatives (4.2.6)

Settling Defendants will assemble selected representative technologies into alternatives for each affected medium. Together, all of the alternatives will represent a range of treatment and containment combinations that will address either the Site or the operable unit as a whole. A summary of the assembled alternatives and their related action-specific ARARs will be prepared by Settling Defendants for inclusion in a technical memorandum. The reasons for eliminating alternatives during the preliminary screening process must be specified.

Refine alternatives

Settling Defendants will refine the remedial alternatives to identify contaminant volume addressed by the proposed process and sizing of critical unit operations as necessary. Sufficient information will be collected for an adequate comparison of alternatives. PRGs for each chemical in each medium will also be modified as necessary to incorporate any new risk assessment information presented in the baseline risk assessment report. Additionally, action-specific ARARs will be updated as the remedial alternatives are refined.

Conduct and document screening evaluation of each alternative (4.3)

Settling Defendants may performed a final screening process based on short and long term aspects of effectiveness, implementability, and relative cost. Generally, this screening process is only necessary when there are many feasible alternatives available

for detailed analysis. If necessary, the screening of alternatives will be conducted to assure that only the alternatives with the most favorable composite evaluation of all factors are retained for further analysis. As appropriate, the screening will preserve the range of treatment and containment alternatives that was initially developed. The range of remaining alternatives will include options that use treatment technologies and permanent solutions to the maximum extent practicable. Settling Defendants will prepare a technical memorandum summarizing the results and reasoning employed in screening, arraying alternatives that remain after screening, and identifying the action-specific ARARs for the alternatives that remain after screening.

c. Alternatives Development and Screening Deliverables (4.5)

Settling Defendants will prepare a technical memorandum summarizing the work performed in and the results of each task above, including an alternatives array summary. These will be modified by Settling Defendants if required by EPA, to assure identification of a complete and appropriate range of viable alternatives to be considered in the detailed analysis. This deliverable will document the methods, rationale, and results of the alternatives screening process.

TASK 6 - DETAILED ANALYSIS OF REMEDIAL ALTERNATIVES (RI/FS Guidance, Chapter 6)

The detailed analysis will be conducted by Settling Defendants to provide EPA with the information needed to allow for the selection of a Site remedy. This analysis is the final task to be performed during the FS.

a. Detailed Analysis of Alternatives (6.2)

Settling Defendants will conduct a detailed analysis of alternatives which will consist of an analysis of each option against a set of nine evaluation criteria and a comparative analysis of all options using the same evaluation criteria as a basis for comparison.

Apply nine criteria and document analysis (6.2.1 - 6.2.4)

Settling Defendants will apply the nine evaluation criteria to the assembled remedial alternatives to ensure that the selected remedial alternative will be protective of human health and the environment; will be in compliance with, or include a waiver of, ARARs; will be cost-effective; will utilize permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable; and will address the statutory preference for treatment as a principal element. The evaluation criteria include: (1) overall protection of human health and the environment; (2)

compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume; (5) short-term effectiveness; (6) implementability; (7) cost; (8) state (or support agency) acceptance; and (9) community acceptance. (Note: criteria 8 and 9 are considered after the RI/FS report (the "Proposed Plan") has been released to the general public.) For each alternative Settling Defendants should provide: (1) a description of the alternative that outlines the waste management strategy involved and identifies the key ARARs associated with each alternative, and (2) a discussion of the individual criterion assessment. If Settling Defendants do not have direct input on criteria (8) state (or support agency) acceptance and (9) community acceptance, these will be addressed by EPA.

Compare alternatives against each other and document the comparison of alternatives
(6.2.5; 6.2.6)

Settling Defendants will perform a comparative analysis between the remedial alternatives. That is, each alternative will be compared against the others using the evaluation criteria as a basis of comparison. Identification and selection of the preferred alternative are reserved by EPA. Settling Defendants will prepare a technical memorandum summarizing the results of the comparative analysis.

b. Detailed Analysis Deliverables (6.5)

In addition to the technical memorandum summarizing the results of the comparative analysis, Settling Defendants will submit a draft FS report to EPA for review and approval. Once EPA's comments have been addressed by Settling Defendants to EPA's satisfaction, the final FS report may be bound with the final RI report.

Feasibility study report (6.5)

Settling Defendants will prepare a draft FS report for EPA review and approval. This report, as ultimately adopted or amended by EPA, provides a basis for remedy selection by EPA and documents the development and analysis of remedial alternatives. Settling Defendants will refer to the RI/FS Guidance for an outline of the report format and the required report content. Settling Defendants will prepare a final FS report which satisfactorily addresses EPA's comments.

REFERENCES FOR CITATION

The following list, although not comprehensive, comprises many of the regulations and guidance documents that apply to the RI/FS process:

The (revised) National Contingency Plan.

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," U.S. EPA, Office of Emergency and Remedial Response, October 1988, OSWER Directive No. 9355.3-01.

"Interim Guidance on Potentially Responsible Party Participation in Remedial Investigation and Feasibility Studies," U.S. EPA, Office of Waste Programs Enforcement, Appendix A to OSWER Directive No. 9355.3-01.

"Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies, Volume 1" U.S. EPA, Office of Waste Programs Enforcement, July 1, 1991, OSWER Directive No. 9835.1(c).

"A Compendium of Superfund Field Operations Methods," Two Volumes, U.S. EPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August 1987, OSWER Directive No. 9355.0-14.

"Guidance for the Data Quality Objectives Process (QA-G-4)," (EPA/600/R-96/055, August 2000).

"Guidance for the Data Quality Objectives Process for Hazardous Waste Sites (QA/G-4HW)," (EPA/600/R-00/007, January 2000).

"EPA Requirements for Quality Management Plans (QA/R-2)," (EPA/240/B-01/002, March 2001).

"EPA Requirements for Quality Assurance Project Plans (QA/R-5)," (EPA/240/B-01/003, March 2001).

"Guidance for Quality Assurance Project Plans (QA/G-5)" (EPA 600/R-98/018, February 1998).

"Users Guide to the EPA Contract Laboratory," U.S. EPA, Sample Management Office, January 1991, OSWER Directive No. 9240.0-01D.

"CERCLA Compliance with Other Laws Manual," Two Volumes, U.S. EPA, Office of

Emergency and Remedial Response, August 1988 (draft), OSWER Directive No. 9234.1-01 and -02

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," U.S. EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Draft Guidance on Superfund Decision Documents," U.S. EPA, Office of Emergency and Remedial Response, March 1988, OSWER Directive No. 9355.-02.

"Risk Assessment Guidance for Superfund - Volume I Human Health Evaluation Manual (Part A), EPA/540/1-89/002.

"Ecological Risk Assessment Guidance for Superfund: Process for Designing & Conducting Ecological Risk Assessments," U.S. EPA, OSWER Directive No. 9285.7-25, February 1997.

"Guidance for Data Useability in Risk Assessment," October, 1990, EPA/540/G-90/008

"Performance of Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSS) Conducted by Potentially Responsible Parties (PRPs)," August 28, 1990, OSWER Directive No. 9835.15.

"Supplemental Guidance on Performing Risk Assessments in Remedial Investigation/Feasibility Studies (RI/FSS) Conducted by Potentially Responsible Parties (PRPs)," July 2, 1991, OSWER Directive No. 9835.15(a).

"Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions," April 22, 1991, OSWER Directive No. 9355.0-30.

"Health and Safety Requirements of Employed in Field Activities," U.S. EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Interim Guidance on Administrative Records for Selection of CERCLA Response Actions," U.S. EPA, Office of Waste Programs Enforcement, March 1, 1989, OSWER Directive No. 9833.3A.

"Community Relations in Superfund: A Handbook," U.S. EPA, Office of Emergency and Remedial Response, January 1992, OSWER Directive No. 9230.0-3C.

"Community Relations During Enforcement Activities And Development of the Administrative

Record," U.S. EPA, Office of Waste Programs Enforcement, November 1988, OSWER Directive No. 9836.0-1a.

Appendix E

Scope of Work for Remedial Design and Remedial Action for OU3 Missouri Electric Works Site Cape Girardeau, Missouri

[Reserved]

Appendix F

Draft Model Environmental Covenant

(ABOVE SPACE RESERVED FOR RECORDER’S USE)

Document Title: Environmental Covenant

Document Date: _____, 20__

Grantor: _____
[address]

Grantee: _____
[address]

Legal Description:

ENVIRONMENTAL COVENANT

This Environmental Covenant is entered into by and between _____ (“Grantor”), and _____ (“Holder”), pursuant to the Missouri Environmental Covenants Act, Sections 260.1000 through 260.1039, RSMo, for the purpose of subjecting the Property (defined below) to the activity and use limitations set forth herein..

RECITALS

A. Grantor is the owner in fee simple of certain real property located at [street address], in [City], [County], Missouri, legally described as:

[insert “legal description of the real property” Section 260.1009(2), RSMo]

the “Property;”

B. Grantor desires to grant to Holder this Environmental Covenant, as provided in the Missouri Environmental Covenants Act, subjecting the Property to certain activity and use limitations for the purpose of ensuring the protection of human health and the environment by minimizing the potential for exposure to contamination that remains on the Property and to ensure that the Property is not developed, used, or operated in a manner incompatible with the environmental response implemented at the Property;

C. [Provide a “brief narrative description of the contamination and remedy, including any contaminants of concern, the pathways of exposure, limits on exposure, and the location and extent of the contamination.” Section 260.1009.2(4), RSMo. Describe site investigative history, authority under which the environmental response project is being administered, NPL listing (if any), health assessment results, and response actions taken. Describe the “environmental response project,” Section 260.1003(5), RSMo.]

NOW THEREFORE, the parties hereto agree as follows:

1. **Parties.** Grantor, Holder, and Department¹ are the parties to this Environmental Covenant and may enforce it as provided for in paragraph ____ below, and Section 260.1030(1), RSMo.

¹ Be sure to define “Department.” MDNR will typically want to be the “Holder,” but check first. Due to CERCLA section 104(j) concerns, EPA should not be the Holder, but should be the “Department.” Per Section 260.100, RSMo, the Grantor can be the Holder.

2. Activity and Use Limitations. As part of the environmental response project undertaken at the Property, Grantor hereby subjects the Property to, and agrees to comply with, the following activity and use limitations:

[Insert the activity and use limitations (AULs) appropriate for the Property. Several AULs may be appropriate as part of a remedial action or closure plan where cleanup to unrestricted use/unlimited exposure is not feasible. Each type of AUL must be considered on a site-specific basis to determine which AUL or combination of AULs is suitable for the particular circumstances, based on the nature of contamination, the affected media and the potential exposures. The types of AULs may include:

- ***Land use limitations*** (e.g., to limit duration and frequency of human exposure to surficial soils, surface water or sediments);
- ***Ground water limitations*** (e.g., to prevent exposure to contaminated ground water by prohibiting extraction or use of ground water, except for investigation or remediation thereof);
- ***Disturbance limitations*** (e.g., to protect in-place remedial systems, to prevent exposures caused by any mixing of contaminated subsurface soils with “clean” surface soils, and to prevent contact with subsurface contamination during excavation, also ground penetrating (drilling, boring, geoprobing) restrictions);
- ***Construction limitations*** (e.g., to prevent exposure to volatile emissions to indoor air from soil or ground water);
- ***Resource protection limitations*** (e.g., to protect certain ecological features associated with the Property)]

3. Running with the Land. This Environmental Covenant shall be binding upon Grantor and its/his/her [heirs, successors, assigns], and Transferees in interest, and shall run with the land, as provided in Section 260.1012, RSMo, subject to amendment or termination as set forth herein. The term “Transferee,” as used in this Environmental Covenant, shall mean any future owner of any interest in the Property or any portion thereof, including, but not limited to, owners of an interest in fee simple, mortgagees, easement holders, and/or lessees.

4. Location of Administrative Record for the Environmental Response Project. The administrative record for the environmental response project conducted at the Property is located at _____.

or

Location of File for the Environmental Response Project. Files for the environmental response project conducted at the Property are located at [EPA and/or MDNR, and provide address].

5. Enforcement. Compliance with this Environmental Covenant may be enforced as provided in Section 260.1030, RSMo. Failure to timely enforce compliance with this Environmental Covenant or the activity and use limitations contained herein by any party shall not bar subsequent enforcement by such party and shall not be deemed a waiver of the party's right to take action to enforce any non-compliance. Nothing in this Environmental Covenant shall restrict any person from exercising any authority under any other applicable law.

6. Right of Access. Grantor hereby grants to each of Holder and Department, and their respective agents, contractors, and employees, the right of access at all reasonable times to the Property for implementation, monitoring or enforcement of this Environmental Covenant. Nothing herein shall be deemed to limit or otherwise affect [include Holder?] Department's rights of entry and access or the Department's authority to take response actions under applicable law.

(the following paragraph is optional)

7. Compliance Reporting. One year from the effective date of this Environmental Covenant, and on an annual basis thereafter until such time as this Environmental Covenant is terminated, or until Department suspends or terminates this obligation, Grantor/Transferee shall submit to Holder and Department documentation verifying that the activity and use limitations imposed hereby were in place and complied with during the preceding calendar year. Such reports shall be sent to Holder and Department at the addresses that appear in paragraph ____ (Notice) below. The Holder and/or Department may change their/its mailing address by written notice to Grantor/Transferee.

8. Notice upon Conveyance. Each instrument hereafter conveying any interest in the Property or any portion of the Property shall contain a notice of the activity and use limitations set forth in this Environmental Covenant, and provide the recording reference for this Environmental Covenant. The notice shall be substantially in the following form:

THE INTEREST CONVEYED HEREBY IS SUBJECT TO AN
ENVIRONMENTAL COVENANT DATED _____, 20____,
RECORDED IN THE OFFICE OF THE RECORDER FOR DEEDS OF

____ COUNTY, MISSOURI, ON _____, 20____, AS
DOCUMENT _____, BOOK _____, PAGE _____.

Grantor/Transferee shall notify Holder and Department within ten (10) days following each conveyance of an interest in any portion of the Property. The notice shall include the name, address, and telephone number of the Transferee, and a copy of the deed or other documentation evidencing the conveyance.

9. Notification Requirement. Grantor/Transferee shall notify [Holder and] Department of any changes in use of the Property, of any applications for building permits for work on the Property, or proposals for work that may affect the contamination on the Property. Grantor/Transferee shall notify Department as soon as possible of conditions that could constitute a breach of the activity and use limitations set forth in this Environmental Covenant.

10. Representations and Warranties. Grantor hereby represents and warrants to Holder and Department as follows:

a. Grantor has the power and authority to enter into this Environmental Covenant, to grant the rights and interests herein provided and to carry out all of Grantor's obligations hereunder;

b. Grantor is the sole owner of the Property and holds fee simple title, which is [free, clear, and unencumbered] or [subject to the interests or encumbrances identified in Exhibit ____ hereto];

c. [If a prior/superior interest has agreed to be subordinated to the Environmental Covenant, you may include the following.]

_____ has an interest in the Property which may be superior to this Environmental Covenant. _____ has agreed to subordinate that interest to this Environmental Covenant. [A copy of a Subordination Agreement subordinating such interest to this Environmental Covenant is attached hereto as Exhibit ____.] or [The Subordination Agreement subordinating such interest to this Environmental Covenant is recorded with the Recorder of Deeds for _____ County, Missouri, on _____, 20____, as Document No. _____, in Book No. _____, at page _____.];

d. Grantor has identified all other parties who hold any interest in the Property and notified such parties of Grantor's intention to enter into this Environmental Covenant; and

e. This Environmental Covenant will not materially violate or contravene or constitute a material default under any other agreement, document or instrument to which Grantor is a party or by which Grantor may be bound or affected.

11. Amendment or Termination. This Environmental Covenant may be amended or terminated by consent signed by Department and Holder. Within thirty (30) days of signature by all requisite parties on any amendment or termination of this Environmental Covenant, Grantor/Transferee shall file such instrument for recording with the office of the recorder of the county in which the Property is situated, and within thirty (30) days of the date of such recording, Grantor/Transferee shall provide a file- and date-stamped copy of the recorded instrument to Department and Holder.

12. Severability. If any provision of this Environmental Covenant is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way be affected or impaired.

13. Governing Law. This Environmental Covenant shall be governed by and interpreted in accordance with the laws of the State of Missouri.

14. Recordation and Distribution. Within thirty (30) days after the date of the final required signature upon this Environmental Covenant, Grantor shall record this Environmental Covenant with the office of the recorder of the county in which the Property is situated. Within thirty (30) days following the recording of this Environmental Covenant, or any amendment or termination of this Environmental Covenant, Grantor/Transferee shall, in accordance with Section 260.1018, RSMo, distribute a file- and date-stamped copy of the recorded Environmental Covenant to: (a) each signatory hereto; (b) each person holding a recorded interest in the Property; (c) each person in possession of the Property; (d) each municipality or other unit of local government in which the Property is located; and (e) any other person designated by the Department.

15. Effective Date. The effective date of this Environmental Covenant shall be the date upon which the fully executed Environmental Covenant has been recorded with the office of the recorder of the county in which the Property is situated.

16. Notice. Any document or other item required by this Environmental Covenant to be given to another party hereto shall be sent to:

If to Grantor:

[name]
[address]

If to Holder:

[name]
[address]

If to Department:

[name]
[address]

The undersigned [representative of] Grantor represents and certif[y/ies] that [he/she] [is/are] authorized to execute this Environmental Covenant.

IT IS SO AGREED:

FOR [GRANTOR(S)]

By: _____ Date: _____
Name (print): _____
Title: _____
Address: _____

[Consult Section 442.210, RSMo for acknowledgement requirements.]

STATE OF _____)
_____)
COUNTY OF _____)

On this ____ day of _____, 200__, before me a Notary Public in and for said state, personally appeared __[NAME]_____,
__[TITLE]_____ of [COPRORATE NAME], known to me to be the person who executed the within Environmental Covenant in behalf of said corporation and acknowledged to me that he/she executed the same for the purposes therein stated.

Notary Public
.....

FOR HOLDER

By: _____ Date: _____

Name (print): _____

Title: _____

Address: _____

STATE OF _____)

_____)

COUNTY OF _____)

On this ____ day of _____, 200__, before me a Notary Public in and for said state, personally appeared __[NAME]_____,
__[TITLE]_____ of [COPRORATE NAME], known to me to be the person who executed the within Environmental Covenant in behalf of said corporation and acknowledged to me that he/she executed the same for the purposes therein stated.

Notary Public

.....

FOR DEPARTMENT

By: _____ Date: _____

Name (print): _____

Title: _____

Address: _____

STATE OF _____)

COUNTY OF _____)

On this ____ day of _____, 200____, before me a Notary Public in and for said state, personally appeared __[NAME]_____,
__[TITLE]_____ of [COPRORATE NAME], known to me to be the person who executed the within Environmental Covenant in behalf of said corporation and acknowledged to me that he/she executed the same for the purposes therein stated.

Notary Public

.....

Appendix G

Performance Guarantee

Itemized Cost Summary

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

REGIONAL PAYROLL COSTS	\$38,258.96
REGIONAL TRAVEL COSTS	\$1,361.96
RESPONSE ACTION CONTRACT (RAC)	
BLACK AND VEATCH (EPS70506)	\$840.48
EPA INDIRECT COSTS	\$15,835.63
Total Site Costs:	<u>\$56,297.03</u>

Regional Payroll Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Hours</u>	<u>Payroll Costs</u>
BARTHOL, KEVIN J.	2008	22	0.75	34.75
			0.75	\$34.75
FRANCE-ISETTS, PAULETTA	2005	27	43.00	2,515.88
ENV ENGINEER (EPM)	2006	02	18.50	1,082.42
		03	6.00	351.06
		04	5.50	321.81
		05	4.50	263.30
		06	4.00	234.04
		07	1.00	58.50
		10	3.00	180.42
		12	9.00	541.38
		13	3.00	179.82
		14	33.50	2,028.21
		15	6.00	360.32
		16	8.00	482.55
		17	3.00	179.76
		18	2.50	151.18
		19	0.00	45.90
		20	0.00	30.84
		21	0.00	83.12
		22	0.00	77.69
		25	0.00	62.06
		26	0.00	54.21
	2007	01	4.00	273.79
		02	10.00	599.23
		03	22.50	1,348.27
		04	2.00	119.85
		05	2.00	118.23
		06	17.50	1,052.68
		08	10.00	609.64
		09	18.50	1,105.66
		10	12.25	746.82
		11	13.00	789.19
		12	3.50	213.36
		21	2.00	118.20

Regional Payroll Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Hours</u>	<u>Payroll Costs</u>
FRANCE-SETTS, PAULETTA	2007	26	4.00	237.88
	2008	02	2.00	119.01
		08	10.00	627.25
		09	20.00	1,254.49
		10	10.50	658.60
		11	1.00	62.73
		12	1.50	94.10
		13	3.00	188.18
		14	19.50	1,223.11
		15	1.00	62.73
		16	14.50	909.50
		19	4.00	248.27
			<u>358.75</u>	<u>\$22,065.24</u>
GUNN JR., REX E.	2008	15	1.50	115.10
SUPERVISORY PROGRAM MANAGER			<u>1.50</u>	<u>\$115.10</u>
HOEFER, DAVID A.	2005	27	12.00	775.70
GENERAL ATTORNEY	2006	02	6.50	420.17
		03	1.00	64.64
		07	10.50	677.79
		08	1.50	96.81
		09	1.00	66.12
		14	4.50	297.58
		15	1.00	66.12
		16	4.00	264.51
		18	17.50	1,157.24
		21	2.00	132.24
	2007	01	4.00	264.51
		05	2.00	126.43
		06	2.50	165.35
		07	1.00	66.12
		08	6.00	404.03
		09	8.50	572.40
		11	3.50	235.69
		13	5.50	370.36

Regional Payroll Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Hours</u>	<u>Payroll Costs</u>
HOEFER, DAVID A.	2007	16	0.50	33.67
		19	2.50	168.35
	2008	03	2.50	172.76
		05	9.50	607.33
		11	4.50	320.46
		13	21.50	1,531.14
		14	3.00	213.65
		15	28.00	1,994.06
		16	36.25	2,593.69
		19	11.50	824.49
		21	2.00	142.43
			216.25	\$14,825.84
JACKSON, CHAUN ACCOUNTANT	2008	20	0.25	10.06
		21	1.25	50.32
			1.50	\$60.38
MICINSKI, CHERYLE L. GENERAL ATTORNEY	2008	15	0.50	38.57
		16	6.50	501.39
		26	1.00	77.13
	2009	05	0.75	57.86
			8.75	\$674.95
SALADIN, BETTY J. ACCOUNTANT	2008	16	1.25	54.41
		22	0.50	22.42
			1.75	\$76.83
SAMEK, PAMELA G. ENVIRONMENTAL PROTECTION SPECIALIST	2008	22	0.25	11.78
			0.25	\$11.78
TEOPACO	2009	06	7.00	271.14
			7.00	\$271.14
WERST, JOLLEEN G.	2008	22	2.50	122.95

Regional Payroll Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Hours</u>	<u>Payroll Costs</u>
ENVIRONMENTAL PROTECTION SPECIALIST			2.50	\$122.95
Total Regional Payroll Costs			599.00	\$38,258.96

Regional Travel Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

<u>Traveler/Vendor Name</u>	<u>Travel Number</u>	<u>Treasury Schedule</u>	<u>Treasury Schedule Date</u>	<u>Travel Costs</u>
FRANCE-SETTS, PAULETTA	TM0404730	ACHA06095	04/07/2006	437.12
ENV ENGINEER (EPM)	TM0404730	ACHA06102	04/14/2006	99.00
	TM0476489	ACHA06324	11/22/2006	447.39
	TM0495096	ACHA07058	03/01/2007	378.45
				<hr/> \$1,361.96
Total Regional Travel Costs				<hr/> <hr/> \$1,361.96

Contract Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

RESPONSE ACTION CONTRACT (RAC)

Contractor Name: BLACK AND VEATCH

EPA Contract Number: EPS70506

Delivery Order Information	<u>DO #</u>	<u>Start Date</u>	<u>End Date</u>
	7008	06/28/2008	08/01/2008

Project Officer(s): FRANCEISETTS, PAULETTA

Dates of Service: From: 06/28/2008 To: 08/01/2008

Summary of Service: RESPONSE ACTION CONTRACT-SUBCLASS(REDI)

Total Costs: \$840.48

<u>Voucher Number</u>	<u>Voucher Date</u>	<u>Voucher Amount</u>	<u>Treasury Schedule Number and Date</u>	<u>Site Amount</u>	<u>Annual Allocation</u>
8	08/15/2008	800.15	08G12 09/10/2008	800.15	40.33
Total:				\$800.15	\$40.33

Contract Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

RESPONSE ACTION CONTRACT (RAC)

Contractor Name: BLACK AND VEATCH

EPA Contract Number: EPS70506

Delivery Order Information	<u>DO #</u>	<u>Start Date</u>	<u>End Date</u>
	7008	06/28/2008	08/01/2008

Project Officer(s): FRANCEISETTS, PAULETTA

Dates of Service: From: 06/28/2008 To: 08/01/2008

Summary of Service: RESPONSE ACTION CONTRACT-SUBCLASS(REDI)

Total Costs: \$840.48

<u>Voucher Number</u>	<u>Schedule Number</u>	<u>Rate Type</u>	<u>Annual Allocation Rate</u>
8	08G12	Class	0.050407

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

<u>Fiscal Year</u>	<u>Direct Costs</u>	<u>Indirect Rate(%)</u>	<u>Indirect Costs</u>
2005	3,291.58	50.29%	1,655.34
2006	10,547.93	37.09%	3,912.23
2007	10,565.55	38.57%	4,075.14
2008	15,727.34	38.57%	6,066.02
2009	329.00	38.57%	126.90
	<u>40,461.40</u>		
Total EPA Indirect Costs			<u>\$15,835.63</u>

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	2005	27	409.56	50.29%	205.97
			2,106.32	50.29%	1,059.27
			2,515.88		\$1,265.24
HOEFER, DAVID A.	2005	27	775.70	50.29%	390.10
			775.70		\$390.10
Total Fiscal Year 2005 Payroll Direct Costs:			3,291.58		\$1,655.34
Total Fiscal Year 2005:			3,291.58		\$1,655.34

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	2006	02	497.34	37.09%	184.46
			585.08	37.09%	217.01
		03	87.76	37.09%	32.55
			263.30	37.09%	97.66
		04	58.52	37.09%	21.71
			58.51	37.09%	21.70
			204.78	37.09%	75.95
		05	58.50	37.09%	21.70
			146.29	37.09%	54.26
			58.51	37.09%	21.70
		06	117.02	37.09%	43.40
			117.02	37.09%	43.40
		07	58.50	37.09%	21.70
		10	180.42	37.09%	66.92
		12	240.62	37.09%	89.25
			300.76	37.09%	111.55

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-ISETTTS, PAULETTA	2006	13	179.82	37.09%	66.70
		14	2,028.21	37.09%	752.26
		15	360.32	37.09%	133.64
		16	331.75	37.09%	123.05
			150.80	37.09%	55.93
		17	179.76	37.09%	66.67
		18	151.18	37.09%	56.07
		19	15.30	37.09%	5.67
			15.30	37.09%	5.67
			15.30	37.09%	5.67
		20	15.42	37.09%	5.72
			15.42	37.09%	5.72
		21	2.96	37.09%	1.10
			38.58	37.09%	14.31
			3.03	37.09%	1.12
			38.55	37.09%	14.30
		22	40.09	37.09%	14.87
			37.60	37.09%	13.95
		25	22.34	37.09%	8.29
			19.86	37.09%	7.37
			19.86	37.09%	7.37
		26	36.15	37.09%	13.41
			18.06	37.09%	6.70
			<u>6,768.59</u>		<u>\$2,510.48</u>
HOEFER, DAVID A.	2006	02	420.17	37.09%	155.84
		03	64.64	37.09%	23.97
		07	677.79	37.09%	251.39
		08	96.81	37.09%	35.91
		09	66.12	37.09%	24.52
		14	297.58	37.09%	110.37
		15	66.12	37.09%	24.52
		16	264.51	37.09%	98.11

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
HOEFER, DAVID A.	2006	18	1,157.24	37.09%	429.22
		21	132.24	37.09%	49.05
			3,243.22		\$1,202.90
Total Fiscal Year 2006 Payroll Direct Costs:			10,011.81		\$3,713.38

TRAVEL DIRECT COSTS

<u>Traveler/Vendor Name</u>	<u>Travel Number</u>	<u>Treasury Schedule Date</u>	<u>Travel Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	TM0404730	04/07/2006	437.12	37.09%	162.13
		04/14/2006	99.00	37.09%	36.72
			536.12		\$198.85
Total Fiscal Year 2006 Travel Direct Costs:			536.12		\$198.85
Total Fiscal Year 2006:			10,547.93		\$3,912.23

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	2007	01	47.26	38.57%	18.23
			113.27	38.57%	43.69
			113.26	38.57%	43.68
		02	59.93	38.57%	23.12
			449.42	38.57%	173.34
			89.88	38.57%	34.67
		03	1,108.58	38.57%	427.58
			59.92	38.57%	23.11

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	2007	03	179.77	38.57%	69.34
		04	59.93	38.57%	23.12
			59.92	38.57%	23.11
		05	118.23	38.57%	45.60
		06	601.53	38.57%	232.01
			270.69	38.57%	104.41
			180.46	38.57%	69.60
		08	365.78	38.57%	141.08
			243.86	38.57%	94.06
		09	119.53	38.57%	46.10
			986.13	38.57%	380.35
		10	502.96	38.57%	193.99
			243.86	38.57%	94.06
		11	789.19	38.57%	304.39
		12	60.96	38.57%	23.51
			152.40	38.57%	58.78
		21	118.20	38.57%	45.59
		26	237.88	38.57%	91.75
			7,332.80		\$2,828.27
HOEFER, DAVID A.	2007	01	264.51	38.57%	102.02
		05	126.43	38.57%	48.76
		06	165.35	38.57%	63.78
		07	66.12	38.57%	25.50
		08	404.03	38.57%	155.83
		09	572.40	38.57%	220.77
		11	235.69	38.57%	90.91
		13	370.36	38.57%	142.85
		16	33.67	38.57%	12.99

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

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Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
HOEFER, DAVID A.	2007	19	168.35	38.57%	64.93
			2,406.91		\$928.34
Total Fiscal Year 2007 Payroll Direct Costs:			9,739.71		\$3,756.61

TRAVEL DIRECT COSTS

<u>Traveler/Vendor Name</u>	<u>Travel Number</u>	<u>Treasury Schedule Date</u>	<u>Travel Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	TM0476489	11/22/2006	447.39	38.57%	172.56
	TM0495096	03/01/2007	378.45	38.57%	145.97
			825.84		\$318.53
Total Fiscal Year 2007 Travel Direct Costs:			825.84		\$318.53
Total Fiscal Year 2007:			10,565.55		\$4,075.14

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
BARTHOL, KEVIN J.	2008	22	34.75	38.57%	13.40
			34.75		\$13.40
FRANCE-SETTS, PAULETTA	2008	02	119.01	38.57%	45.90
		08	627.25	38.57%	241.93
		09	1,254.49	38.57%	483.86
		10	658.60	38.57%	254.02
		11	31.36	38.57%	12.10
			31.37	38.57%	12.10

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
FRANCE-SETTS, PAULETTA	2008	12	62.73	38.57%	24.19
			31.37	38.57%	12.10
		13	188.18	38.57%	72.58
		14	1,223.11	38.57%	471.75
		15	62.73	38.57%	24.19
		16	909.50	38.57%	350.79
		19	248.27	38.57%	95.76
			<u>5,447.97</u>		<u>\$2,101.27</u>
GUNN JR., REX E.	2008	15	115.10	38.57%	44.39
			<u>115.10</u>		<u>\$44.39</u>
HOEFER, DAVID A.	2008	03	172.76	38.57%	66.63
		05	607.33	38.57%	234.25
		11	320.46	38.57%	123.60
		13	1,531.14	38.57%	590.56
		14	213.65	38.57%	82.40
		15	1,994.06	38.57%	769.11
		16	2,593.69	38.57%	1,000.39
		19	609.40	38.57%	235.05
			215.09	38.57%	82.96
		21	142.43	38.57%	54.94
			<u>8,400.01</u>		<u>\$3,239.89</u>
JACKSON, CHAUN	2008	20	10.06	38.57%	3.88
		21	50.32	38.57%	19.41
			<u>60.38</u>		<u>\$23.29</u>
MICINSKI, CHERYLE L.	2008	15	38.57	38.57%	14.88
		16	501.39	38.57%	193.39

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

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Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
MICINSKI, CHERYLE L.	2008	26	77.13	38.57%	29.75
			617.09		\$238.02
SALADIN, BETTY J.	2008	16	21.77	38.57%	8.40
			32.64	38.57%	12.59
		22	11.21	38.57%	4.32
			11.21	38.57%	4.32
			76.83		\$29.63
SAMEK, PAMELA G.	2008	22	11.78	38.57%	4.54
			11.78		\$4.54
WERST, JOLLEEN G.	2008	22	122.95	38.57%	47.42
			122.95		\$47.42
Total Fiscal Year 2008 Payroll Direct Costs:			14,886.86		\$5,741.85

OTHER DIRECT COSTS

<u>Contract, IAG, SCA, Misc.NO</u>	<u>Voucher Number</u>	<u>Treasury Schedule Date</u>	<u>Site Amount</u>	<u>Annual/SMO Allocation Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
EPS70506	8	09/10/2008	800.15	40.33	38.57%	324.17
			800.15	40.33		\$324.17
Total Fiscal Year 2008 Other Direct Costs:			800.15	40.33		\$324.17
Total Fiscal Year 2008:			15,727.34			\$6,066.02

EPA Indirect Costs

MISSOURI ELECTRIC WORKS, CAPE GIRARDEAU, MO SITE ID = 07 6R

Operable Unit(s): 02, 03

CRP# 121314

Costs 10/1/05 - 12/31/08

PAYROLL DIRECT COSTS

<u>Employee Name</u>	<u>Fiscal Year</u>	<u>Pay Period</u>	<u>Payroll Costs</u>	<u>Ind. Rate (%)</u>	<u>Indirect Costs</u>
MICINSKI, CHERYLE L.	2009	05	57.86	38.57%	22.32
			57.86		\$22.32
TEOPACO	2009	06	96.84	38.57%	37.35
			174.30	38.57%	67.23
			271.14		\$104.58
Total Fiscal Year 2009 Payroll Direct Costs:			329.00		\$126.90
Total Fiscal Year 2009:			329.00		\$126.90
Total EPA Indirect Costs					\$15,835.63

MEW SPECIAL NOTICE RECIPIENTS

Barry Electric Cooperative
Barton County Electric Cooperative
Central Illinois Public Service Company (Successor Company of Illinois Electric & Gas Company)
Chevron Chemical Company
Citizens Electric Corporation
Citizens Utilities Company (successor: Citizens Communications Company)
City of Cabool, MO
City of Fredericktown, MO
City of Jackson, MO
City of Sikeston, MO
Costain Coal, Inc., a Delaware Corp., successor Pyro Mining Company
EEMSCO, Inc., successor to Evansville Electric & Manufacturing Co., Inc.
E.I. Dupont De Nemours & Company
Farmers' Electric Cooperative, Inc.
Florida Power Corporation
Hancock County Rural Electric Membership Corporation
Kagmo Electric Motor Company
Kaiser Aluminum & Chemical Corporation
Marathon Oil Company
Menard Electric Cooperative
Mississippi Lime Co.
MJM Electric Cooperative, Inc.
South Central Indiana Rural Electric Membership Corporation (successor to Morgan County Rural Electric Membership Corporation)
New England Power Company (successor to: New England Power Service Company)
New Mac Electric Cooperative, Inc.
Pemiscot Dunklin Electric Coop
Nestle Purina Petcare Company (successor to: Ralston Purina Company)
Richards Electric Motor Co.
Sachs Electric Company
Siemens Energy & Automation, Inc.
Southern Illinois Electric Coop
The Doe Run Resources Corporation (successor to: St. Joe Minerals Corp.)
SN-Dipcorp, Inc. (successor to: Swanson-Nunn Electric Co., Inc.)
(The) Boc Group, Inc.
Chevron Mining, Inc. (successor to: The Pittsburg and Midway Coal Mining Co.)
Toastermaster, Inc.
Union Electric Company
Vernon Bagwell

Whitewater Valley Rural Electric Membership Corporation (successor to: Wayne County REMC)
Wayne-White Counties Electric Cooperative
Bull Moose Tube Company
Chase Resorts, Inc.
City of Carmi, IL
City of Jacksonville, IL for City Light and Power
City of Seymour, MO
Dugger Electric Equipment Co., Inc.
Electric Plant Board
City of Mayfield, KY d/b/a Mayfield Electric & Water Systems
Himmelberger Harrison Co., Inc.
Independent Electric Machinery Co.
Koener Electric Motors of Indiana, Inc.
Millstone Construction, Inc., d/b/a Knobel-Redman Construction Co. Successor: K & M Investors, Inc.
Mobil Oil Corporation - two possible successors: Socony Mobil Company, Inc. (DE) or Exxonmobil Oil Corporation (NY)
Mt. Carmel Public Utility Co.
Pet Incorporated
Scott-New Madrid-Mississippi Electric Co. (successor: SEMO Electric Cooperative)
St. Louis Steel Casting, Inc.
Tipmont Rural Electric Membership Corporation
Vaughn Electric Company, Inc.
Westinghouse Electric Corporation
Whirlpool Corporation
Zeller Electric, Inc. (successor: Jamieson (ZE), Inc.
U.S. Govt.
U.S. Govt. (Alabama)
U.S. Govt.(Florida.)
U.S. Govt. (Ohio)
Dept. of Navy/Naval Facil. Engin. Command, U.S. Govt. Norfolk, Va.
Defense General Supply Center
DRMS f/k/a Defense Property Disposal
Federal Material, Cape Girardeau, Mo.
U.S. Army - Volunteer Army Ammunition Plant
U.S. Air Force - Blytheville Air Force Base



Office of Enforcement and Compliance Assurance
INFORMATION SHEET

U. S. EPA Small Business Resources

If you own a small business, the United States Environmental Protection Agency (EPA) offers a variety of compliance assistance resources such as workshops, training sessions, hotlines, websites, and guides to assist you in complying with federal and state environmental laws. These resources can help you understand your environmental obligations, improve compliance, and find cost-effective ways to comply through the use of pollution prevention and other innovative technologies.

Compliance Assistance Centers

(www.assistancecenters.net)

In partnership with industry, universities, and other federal and state agencies, EPA has established Compliance Assistance Centers that provide information targeted to industries with many small businesses.

Agriculture

(www.epa.gov/agriculture or 1-888-663-2155)

Automotive Recycling Industry

(www.ecarcenter.org)

Automotive Service and Repair

(www.ccar-greenlink.org or 1-888-GRN-LINK)

Chemical Industry

(www.chemalliance.org)

Construction Industry

(www.cicacenter.org or 1-734-995-4911)

Education

(www.campuserc.org)

Healthcare Industry

(www.hercenter.org or 1-734-995-4911)

Metal Finishing

(www.nmfrc.org or 1-734-995-4911)

Paints and Coatings

(www.paintcenter.org or 1-734-995-4911)

Printed Wiring Board Manufacturing

(www.pwbrc.org or 1-734-995-4911)

Printing

(www.pneac.org or 1-888-USPNEAC)

Transportation Industry

(www.transource.org)

Tribal Governments and Indian Country

(www.epa.gov/tribal/compliance or 202-564-2516)

US Border Environmental Issues

(www.bordercenter.org or 1-734-995-4911)

The Centers also provide State Resource Locators (www.envcap.org/statetools/index.cfm) for a wide range of topics to help you find important environmental compliance information specific to your state.

EPA Websites

EPA has several Internet sites that provide useful compliance assistance information and materials for small businesses. If you don't have access to the Internet at your business, many public libraries provide access to the Internet at minimal or no cost.

EPA's Home Page

www.epa.gov

Small Business Gateway

www.epa.gov/smallbusiness

Compliance Assistance Home Page

www.epa.gov/compliance/assistance

Office of Enforcement and Compliance Assurance

www.epa.gov/compliance

Voluntary Partnership Programs

www.epa.gov/partners



U.S. EPA SMALL BUSINESS RESOURCES

Hotlines, Helplines & Clearinghouses

(www.epa.gov/epahome/hotline.htm)

EPA sponsors many free hotlines and clearinghouses that provide convenient assistance regarding environmental requirements. A few examples are listed below:

Clean Air Technology Center

(www.epa.gov/ttn/catc or 1-919-541-0800)

Emergency Planning and Community Right-To-Know Act

(www.epa.gov/superfund/resources/infocenter/epcra.htm or 1-800-424-9346)

EPA's Small Business Ombudsman Hotline provides regulatory and technical assistance information.
(www.epa.gov/sbo or 1-800-368-5888)

The National Environmental Compliance Assistance

Clearinghouse provides quick access to compliance assistance tools, contacts, and planned activities from the U.S. EPA, states, and other compliance assistance providers
(www.epa.gov/clearinghouse)

National Response Center to report oil and hazardous substance spills.

(www.nrc.uscg.mil or 1-800-424-8802)

Pollution Prevention Information Clearinghouse

(www.epa.gov/opptintr/ppic or 1-202-566-0799)

Safe Drinking Water Hotline

(www.epa.gov/safewater/hotline/index.html or 1-800-426-4791)

Stratospheric Ozone Refrigerants Information

(www.epa.gov/ozone or 1-800-296-1996)

Toxics Assistance Information Service also includes asbestos inquiries.

(1-202-554-1404)

Wetlands Helpline

(www.epa.gov/owow/wetlands/wetline.html or 1-800-832-7828)

State Agencies

Many state agencies have established compliance assistance programs that provide on-site and other types of assistance. Contact your local state environmental agency for more information or the following two resources:

EPA's Small Business Ombudsman

(www.epa.gov/sbo or 1-800-368-5888)

Small Business Environmental Homepage

(www.smallbiz-enviroweb.org or 1-724-452-4722)

Compliance Incentives

EPA provides incentives for environmental compliance. By participating in compliance assistance programs or voluntarily disclosing and promptly correcting violations before an enforcement action has been initiated,

businesses may be eligible for penalty waivers or reductions. EPA has two policies that potentially apply to small businesses:

The Small Business Compliance Policy

(www.epa.gov/compliance/incentives/smallbusiness)

Audit Policy

(www.epa.gov/compliance/incentives/auditing)

Commenting on Federal Enforcement Actions and Compliance Activities

The Small Business Regulatory Enforcement Fairness Act (SBREFA) established an SBA Ombudsman and 10 Regional Fairness Boards to receive comments from small businesses about federal agency enforcement actions. If you believe that you fall within the Small Business Administration's definition of a small business (based on your North American Industry Classification System (NAICS) designation, number of employees, or annual receipts, defined at 13 C.F.R. 121.201; in most cases, this means a business with 500 or fewer employees), and wish to comment on federal enforcement and compliance activities, call the SBREFA Ombudsman's toll-free number at 1-888-REG-FAIR (1-888-734-3247).

Every small business that is the subject of an enforcement or compliance action is entitled to comment on the Agency's actions without fear of retaliation. EPA employees are prohibited from using enforcement or any other means of retaliation against any member of the regulated community in response to comments made under SBREFA.

Your Duty to Comply

If you receive compliance assistance or submit comments to the SBREFA Ombudsman or Regional Fairness Boards, you still have the duty to comply with the law, including providing timely responses to EPA information requests, administrative or civil complaints, other enforcement actions or communications. The assistance information and comment processes do not give you any new rights or defenses in any enforcement action. These processes also do not affect EPA's obligation to protect public health or the environment under any of the environmental statutes it enforces, including the right to take emergency remedial or emergency response actions when appropriate. Those decisions will be based on the facts in each situation. The SBREFA Ombudsman and Fairness Boards do not participate in resolving EPA's enforcement actions. Also, remember that to preserve your rights, you need to comply with all rules governing the enforcement process.

EPA is disseminating this information to you without making a determination that your business or organization is a small business as defined by Section 222 of the Small Business Regulatory Enforcement Fairness Act or related provisions.